

## Focus

Underground Economy  
Amounting to 23% of National  
GDP in Korea

## Economy & Finance

Foreign Exchange Rates  
Foreign Exchange Authorities  
in a Dilemma

## Industry in Focus

Automobile Market  
Why Are Korean Cars Losing  
Their Popularity in Korea?

# BUSINESSKOREA

MARCH 2013 / VOL. 31 No. 338

[www.businesskorea.net](http://www.businesskorea.net)

## Water Industry, “Blue Gold” of 21st Century



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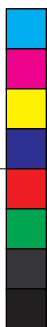






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MARCH 2013 / VOL. 31 NO.338



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# BUSINESSKOREA

**Chairman:** Han Kon-ju  
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**Senior Editor:** Choi Jin-gyeong  
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**Ad & Marketing Director:** Lim Sang-hun  
**Advertising Manager:** Kim Hyun-soo  
**Administration Manager:** Jung Min-hee  
**Circulation Manager:** Lim Moon-joo

**PUBLISHED BY:** BusinessKorea Co., Ltd. : 301 Samdo Building,  
 12-1 Yeoido-dong, Yeongdeungpo-gu, Seoul, Korea 150-010  
**Mailing Add.:** 301 Samdo Building,  
 12-1 Yeoido-dong, Yeongdeungpo-gu, Seoul, Korea 150-010  
**Tel:** (02)578-3220 **Fax:** (02)578-3224  
 Government Registration Number: RA-2743 Dated March 18, 1983.  
 Printed by Hwashin Printing Tel: (02)2277-0624

## Overseas Representatives

### Australia

McLean Media Representations Pty, Ltd.  
 P.O.Box 544, Newtown NSW 2042, Australia  
 Tel: (612) 519-6455, Fax: (612) 577-1614

### Belgium

Staf Wuyts, AD International  
 Bld. Lambertmont 140 B-1030 Brussels, Belgium  
 Tel: (02) 216-0730, Fax: (02) 216-4632

### Canada

Globe Media International  
 444 Front Street West, Toronto, Ontario, Canada M5V 2S9  
 Tel: (416) 585-5415, Tlx: 06-219629, Fax: (416) 585-5275

### Finland

Seppo Lehtinen, Seppo Lehtinen Oy  
 Fredrikinkatu 33 B, 00120 Helsinki, Finland  
 Tel: (90) 611471, 647412, Tlx: 12-2814 sigco sf, Fax: (90)609114

### Germany

Franz Brunsing, Industrial Export Services  
 Buttgenweg 18, D 4000 Dusseldorf 11, Federal Republic of Germany  
 Tel: (0211) 59 26 22, Tlx: 8587465 SERV D, Fax: 49-211-59-611-43

### Hong Kong

Serina Cheung, Managing Director, Media Services Network  
 10/F Flat A, Sun Hey Mansion, 72 Hennessy Road, Wanchai, Hong Kong  
 Tel: 529-3677, Fax: 866-2398

### Indonesia

Yoly de Rivera  
 P.T. MEDIANET INTISARANA  
 Kerayoran Baru, Jakarta Selatan 12110, Indonesia  
 Tel: 7202587, 7202488 Fax: 7202651

### Italy

Carlo E. Calcagno, Studio Calcagno Srl,  
 International Media Representative  
 Via Copernico, 22-20125, Milano, Italy  
 Tel: (392) 689-4891 Fax: (392) 607-0773

### Japan

Japan Advertising Communications  
 Three Star Building, 3-10-3 Kanda Jimbocho Chiyoda-ku, Tokyo 101  
 Tel: (3) 3261-4591, Fax: (3) 3261-6126

### Netherlands

A.A. Van der Graaf, Office Manager  
 Publicitas b.v., Maassluisstraat 414, 1062 GS Amsterdam, Netherlands  
 Tel: 020-178795, Tlx: 11656 PUBAM NL, Fax: 020-174414

### Philippines

Mr. Paul Lignes, ASPAC  
 P.O.Box 7226, Domestic Airport Post Office  
 Tel: 827-3950, 827-4477, Tlx: 64838 LTA BCPN, Fax: (632) 817-5802

### Singapore

Hoo Siew Sai  
 Major Media Singapore Pte Ltd., 6th Floor, 52 Chin Swee Road  
 Singapore 0316  
 Tel: 7380122, Fax: 7382108

### Sweden, Norway and Denmark

Sten Janson, Business Books in Saro AB  
 Gihlsrovagen 19, S-43040 Saro, Sweden  
 Tel: 46-31936220, Fax: 46-31151333

### Switzerland

Joseph Pollet, Managing Partner  
 IPP International Publications Partners  
 P.O.Box 3329, CH-4002 Basel Tel: 061/35 27 66, Fax: 061/35 24 88

### Taiwan

Lewis Int'l Media Services Co., Ltd.  
 Floor 11-14, No. 46, Sec. 2, Tun Hua South Road, Taipei, Taiwan,

### Republic of China

Tel: 886-2-7075519 or 7087727, Fax: 886-2-7098348

### Thailand

Anthony Sharma, Thai Representation Ltd.  
 Thai Representation-867 58 Sukhumvit 101, Prakanong, bangchak, Bangkok  
 10260, Thailand  
 Tel: 662-3320503-4, 662-3319690-2 Fax: 3319303

### United Kingdom

Anthony Turner, Managing Director, The Colin Turner Group  
 City Cloisters, 188-196 Old Street, London EC1V 9BX  
 Tel: 71-490-5551, Tlx: 261140 TURNER G, Cable: TURNERSYND  
 LONDON ECI  
 Fax: 71-490-2271

### U.S.

Madiene Olson  
 Marston Webb International, 60 Madison, Ave., New York, N.Y. 10010  
 Tel: 212-684-6601, Tlx: 420773 BRANINT, Fax: 212-725-4709

## To Our Readers



Deng Yuwen, deputy editor of the Learning Times, a journal of CCP (Chinese Communist Party) Party School, contributed an article titled "Beijing should abandon wayward North Korea" to The Financial Times on February 28. Given that China is a country with limited freedom of speech, the article is regarded as media manipulation by the Chinese government.

This may mean that China has raised its pressure on North Korea by hinting at the possibility of abandoning the socialist regime. This may be simply a way to show the United States

its will for denuclearization and greater control over the North. However, international relations experts believe that China has not changed its Korean peninsula policy fundamentally but is instead increasing strategic ambiguity by sending mixed signals to related countries.

According to the experts, the Chinese government has been following a so-called double deal policy since the North's third nuclear test, partially withdrawing support for the country for the sake of strategic ambiguity. Under such circumstances, it can be expected that South Korea and China will become closer with each other both economically and diplomatically. For China, Korea is a useful trump card with which it can control the North, put a brake on Japan, and contain the United States.

With China in pursuit of such ambiguity, the Korean government needs to come up with more comprehensive diplomatic and military response plans. The Park Geun-hye government is currently approaching China based on the understanding of the United States. Her meeting with the Chinese envoy ahead of the Japanese counterpart right after her election as the President was seen by many as an unprecedented diplomatic gesture. According to some media reports, the Presidential Office is mulling over the President visiting China before heading to the US. It is a highly progressive and positive sign under the assumption that such a move could provide an opportunity for her close consultation with the US government.

Before taking office officially, Minister of Foreign Affairs Yoon Byung-se announced that he changed the priorities of diplomatic relations from US, Japan, China and Russia to US, China, Japan and Russia. He was criticized for the remark by some media channels back then, but it was most likely a purposeful signal to China rather than simply a diplomatic mistake.

Korea has to remain in consistent pursuit of national interests in a cool, calm and collected manner no matter what action is taken by the Chinese government. Neither the people at large nor the political community should be divided into pro-US and pro-China factions obsessed with ideologies to give rise to more social and political conflicts.

Park Jung-hwan,  
 Publisher & Editor-in-Chief

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2013  
New Start, AGAIN KEPCO



2009년, 에너지 강국을 만들다 [UAE 해외 원전 수출]



1982년, 국제 경쟁력을 갖추다 [한국전력공사 출범]



1961년, 근대 사회를 이끌다 [한국전력주식회사 발족]



1898년, 대한민국에 빛을 밝히다 [한성전기회사 설립]



## North Gyeongsang Province

# Globalizing “Saemaeul Movement” and New Hallyu

The province, birthplace of the Saemaeul Movement (New Community Movement), has been expanding overseas activities, in particular, hosting Istanbul-Gyeongju World Culture Expo 2013 this year and helping less developed nations overcome poverty



Kim Kwan-yong, governor of North Gyeongsang Province

North Gyeongsang Province hosts the Istanbul-Gyeongju World Culture Expo 2013 in Turkey in August this year, thus further spreading Hallyu culture. At the same time, it is focusing on the export of the New Community Movement in order to share the success story with less developed nations, while also establishing nuclear power clusters so as to make inroads into the global nuclear power generation market and revitalize the regional economy. Business Korea sat down with North Gyeongsang Provincial governor Kim Kwan-yong to discuss the background and blueprints of these projects.

**What is the aim of the Istanbul-Gyeongju World Culture Expo 2013, which will constitute a key part of tourism to the province and Hallyu this year?**

The expo is to promote the culture of Korea, especially the ancient Shilla Kingdom. We have already hosted the event six times, both at home and abroad since 1998, including in Cambodia in 2006. This time, we aim to export the excellent culture of our region to Turkey, building on our successful hosting experience.

Turkey is a country with a high cultural pride and it is achieving rapid economic growth these days. From a historical point of view, it is a blood ally with Korea, with it sending 15,000 soldiers during the Korean War. Turkish people call Korea Kankardesh, that is, a brother by blood. The expo is scheduled from August 31 to September 22 in Istanbul, and has both the Korean and Turkish governments backing. The festival has the symbolic significance of building the silk road of culture by means of Hallyu.

Turkey is the 17th-largest economy in the world and recorded the highest economic growth rate among OECD member countries in 2010. We anticipate that the expo this year will result in expanded business cooperation.

**North Gyeongsang Province is moving ahead with the Korea Silk Road Project. What is the current status?**

We recently finalized the program schedule and are now working on

detailed event plans. The joint organizing committee is working closely with both governments, their diplomatic offices, culture centers, Korean societies abroad, and so forth in order to prepare for the project. To the same end, we sent public employees in December last year to the Consulate General of the Republic of Korea in Istanbul and the Joint Secretariat. We are planning to dispatch more personnel from April so that preparations, including the establishment of the venue and the arrangement of volunteer interpreters, can be completed by July. Program rehearsals are scheduled for August before the start of the festival on the last day of the month.

The event is joined by over 50 countries from all around the world and more than 30 cultural programs are provided in nine segments, such as exhibition, performance, hands-on experience and special event, in order to impart the excellent culture of Korea, North Gyeongsang Province and Shilla. Furthermore, additional events prepared by central governments will be made available during the same period, such as the Special Exhibition of Korean Cultural Properties, the Overseas Trade Fair and the K-Food Fair.

In the meantime, the Korea Silk Road Expedition set out on its journey on March 21 for the promotion of harmony between tradition and modernity in the current digital age. The team will go to Istanbul on August 31 via Gyeongju, Xian in China, Samarkand in Uzbekistan



and Teheran, Iran. It is going to place marking stones for memory in major stopovers while holding academic conferences and cultural performances. In short, the expedition can be considered as a caravan carrying culture instead of silk.

**The province is striving to export the New Community Movement. What is the blueprint for this?**

The goal of the project is to share the experience and know-how of the Saemaeul Movement with the international community in an effort to help less developed nations overcome poverty.

North Gyeongsang Province is where the Saemaeul Movement originated. It has sent approximately 100 volunteer workers each year to 15 village areas in Africa and Asia to build model communities, and cooperated with the ST-EP Foundation and the MP Foundation of the UN to set up Millennium Villages for the eradication of poverty. Furthermore, college students and medical workers in the province have formed volunteer corps for activities abroad, and a variety of programs have been provided that allow foreign students in the province to participate.

Down the road, we will go on with our flexible and region-specific approach for the spread of the New Community Movement in a comprehensive, systematic way, and remain a pioneer in the quest through joint efforts between the private and public sectors. In addition, a graduate school dedicated to the purpose is to be established for government and community leaders and policymakers from underdeveloped countries, and which will contribute greatly to the global human networks of the Saemaeul Movement.

The Saemaeul Globalization Foundation was established in November last year. It is an organization designed to lead joint efforts among academia, research institutes, enterprises and the province, and we are planning to grow it into an international organization affiliated with the UN, one that will play a crucial role in the eradication of pov-



erty on a global level. We will continue to exert much effort so that our globalization project will become an official development aid (ODA) model adopted by the UN and one that can make its way beyond Asia and into Africa and Latin America.

**Nuclear power clusters constitute another key undertaking of the province. What is the background and future plans?**

We made a report regarding this to President Lee Myung-bak last year when he visited the Uljin Nuclear Power Plant. He then launched national projects designed to accelerate progress led by private-sector companies.

North Gyeongsang Province is home to not only 11 of the nation's 23 atomic power stations, but also radioactive waste disposal activities. People in the province have actively cooperated with the local government, making a great contribution to the energy supply policy of Korea, yet unfortunately, they have seen little benefit. The cluster establishment project is designed to address the current situation in which only unpleasant facilities are situated in the region.

We will make use of existing infrastructure and combine it with nuclear R&D, industrial production, human resources training and environment-related infrastructure in order to form nuclear power clusters. The ultimate aim is to revitalize the regional economy and cre-




The Inaugural Meeting of the Istanbul-Gyeongju World Culture Expo 2013 Organization Committee

ate more jobs by increasing our presence in the global nuclear power market.

**Some people are skeptical about atomic power generation due to the Fukushima disaster. What would you say to such people?**

North Gyeongsang Province promises that the cluster establishment project will progress only when safety is guaranteed and the people offer their trust and understanding. It will also continue providing accurate data and information concerning the progress of the project.

We will concentrate more on the issue of nuclear safety this year by organizing and running a nuclear safety association so as to win the trust of locals and monitor the safety of nuclear power plants in the region. This will result in the successful establishment of these clusters, which in turn will help the province become a leading exporter of nuclear power generation technologies and thus reinvigorate the regional economy. 

## Cyber Terror

# Korean Broadcasting, Banking Paralyzed

Korean people witnessed an unprecedented incident recently in which the computer networks of Korea Broadcasting System (KBS), Munhwa Broadcasting Corp (MBC), YTN cable news channel, Shinhan Bank and Nonghyup Bank were all paralyzed in the afternoon of March 20.

The three broadcasters' computer systems went down simultaneously at 2 p.m.. Shinhan Bank and other financial institutions also experienced a system failure from around 2:20 p.m.. Therefore, transactions through bank counters, online and mobile banking systems and automated teller machines (ATM) had to be delayed.

Shinhan Bank's online, mobile and ATM banking services were all stopped from around 2:20 p.m. that day. Terminals at some branches of Jeju Bank and Nonghyup Bank blacked out, while parts of files saved in some PCs at Nonghyup Life Insurance and Nonghyup Property & Casualty Insurance were deleted. While a certain number of financial

institutions had their computer systems damaged, some banks, including KB, Woori, Hana, SC and Citi were relieved to find their systems running as usual.

The government raised the alert level for cyber crisis from "concerned" to "warning" as of 3 o'clock that afternoon, saying "There is a possibility of cyber hacking from outside." The Ministry of National Defense also tightened its military information readiness called "INFOCON" from level four to level three the same day.

Security experts raised the possibility of Advanced Persistent Threats (APT) in regards to the cause of the incident. APT is a type of cyber attack by which a pre-distributed malware code carries out an order to attack a specific site at a specific point of time. A source from LG U+ explained, "No problem was found in the network lines connected to the broadcasting companies and financial institutions. Therefore, it seems like attacks on internal systems rather than attacks using data."

## Malicious Code from China; North Korea under Suspicion

It has been confirmed on March 21 that a malicious code used for the simultaneous shutdown came from China.

Given that North Korean hackers tend to launch attacks mostly via China, many people suspect North Korea might be behind Wednesday's attacks.

◀ On the afternoon of March 20, when the computer systems of some of the nation's major broadcasters and financial institutions were simultaneously shut down, investigators at the Internet Incidents Response Center of the Korea Internet & Security Agency (KISA) were busy working to identify the problem.


Investigators from the joint response team, composed of the Korea Communications Commission (KCC), the National Police Agency (NPA) and the KISA announced at a news briefing on March 21, "From the investigation into the computer systems of Nonghyup Bank, we've found that a Chinese IP address (101.106.25.105) logged on to the server for the distribution and management of vaccine software and created a malicious code."

In other words, it seems that a still-unidentified hacker or hacker group entered the update management server called the "Patch Management System (PMS)" of the bank via a Chinese network, planted malicious files, and gave the order to destroy subordinate computers' booting points at a given time.

The investigators have also learned that Wednesday's attacks were launched by the same hacker or same hacker group, but are unable to identify who these are. Approximately 32,000 PCs and the servers of six media and financial companies were damaged by the attacks.

The joint response team is trying hard to know who is behind the attacks by investigating the malicious files they have collected, as well as the log records of the damaged PCs and servers.

According to the government's emergency action plan, all national and public organizations, national transportation and power networks, financial institutions, hospitals, and other kinds of important organizations should separate their vaccine update servers from the Internet and reset the time at the CMOS mode when booting their PCs.

Meanwhile, the joint response team has found no problem with its emergency security checks for the Ministry of Land, Transport and Maritime Affairs (construction and transportation), the Ministry of Knowledge Economy (energy), the Ministry of Public Administration and Security (the government's integrated information system), National Intelligence Service and other government organizations. 





## Underground Economy

# Amounting to 23% of National GDP in Korea

It has been found that the underground economy of Korea reached 290 trillion won in size last year, no less than 23% of the national nominal GDP.

On March 3, the Hyundai Research Institute published a report titled "How to Deal with Underground Economy," pointing out that Korea's ratio of owner operators is higher than the average of OECD member countries, and that the tax burden is increasing rapidly, resulting in the fast expansion of the underground economy.

The research institute used a money demand model to estimate the size of the underground economy. The figure was approximately 10 percentage points higher than the average of advanced economies and approximately three percentage points lower than that of emerging nations. Although the absolute size increased consistently, its ratio to GDP rose slightly after decreasing.

According to the report, one of the reasons for the high percentage is the ratio of self-employed workers being as high as 28.8%. The same figure was 7.0% in the United States, 12.3% in Japan and 13.9% in Britain last year. The National Tax Service recently conducted tax investigations of the high-income self-employed and found that their income tax evasion rate was 48%.

Another reason is the burden regarding taxes and social security contributions had increased more rapidly than in the US, Japan and Britain. The burden rate rose from 22.6% to 25.9% in Korea between 2000 and 2011. Other causes include widespread corruption in industries and society, and workers being driven into the black labor market due to the ongoing economic recession.

The institute said that different industry-specific measures are required for the legalization of the underground economy, including tax incentives for those who pay their taxes faithfully in the food service, education, and medical sectors, etc. "Closer supervision has to be put in place in the service industry, where cash transactions are more frequent, and the tax authorities have to be able to get more access to finan-



cial information," said Kim Min-jung, a researcher at the institute, adding, "At the same time, the government has to pursue economic revitalization to prevent the black labor market from further increasing in size."

## Labor Force Participation Rate

## Dropped below 60% in Korea

It is expected that Korea's labor force participation rate will dip below 60% this year for the first time in 24 years, due mainly to the rapid aging of the population and shrinkage of the labor market caused by the economic recession.

According to Statistics Korea and the National Assembly Budget Office, the percentage is estimated at 59.3% this year. It has remained over 60% since 1990 due to the country's roughly nine million baby boomers, who were born between 1955 and 1964, being in the labor market and the increasing number of women joining them.

In the meantime, the total number of economically active people in Korea is expected to add up to approximately 24.819 million in 2013, down 2.3% from the preceding year's 25.403 million. This will be the first time the figure has recorded negative growth in 15 years.

The biggest culprit for this erosion of economic vitality is the aging population that is currently in progress at a rapid pace. This year, Korea's aging index, which was 77.9% in 2012, is forecast to reach as high as 83.3%, surpassing the 80% mark for the first time ever and posting its highest rate of increase in history.

The aging index can be defined as the number of those aged 65 or older to those aged under 15. In Korea, the figure exceeded 10% in 1978, 20% in 1990, 30% in 1998 and 50% in 2006. The ratio of the aged to the total population is predicted to increase 0.4 percentage points to 12.2% in 2013.

Another reason is the lack of jobs due to the current economic recession. The number of new jobs in Korea is estimated to stand at about 300,000 this year, 80,000 to 150,000 less than the previous year. Experts are voicing concerns that a decline in the labor force participation rate will result in a decreased potential growth rate and prolonged slow growth further down the road.

## Foreign Exchange Rates

# Foreign Exchange Authorities in a Dilemma

Economic research institutes predict an economic contraction this year if the strong won-weak Yen trend worsens



Bank of Korea Governor Kim Choong-soo is opening the Monetary Policy Committee meeting on March 14 to decide on the base rate.

A new report predicted that if the strong won-weak yen trend continues further, it will significantly dampen Korea's growth for this year. The report even warned of negative growth. The report entitled, "Ripple Effects of a Strong Won and a Weak Yen and Countermeasures," authored by researchers including chief researcher Jung Yong-sik at Samsung Economic Research Institute (SERI) and released on March 13, published the results of an analysis of the impact of further won appreciation and yen depreciation on Korean economy and industry as a whole based on scenarios.

There are two scenarios. The first one assumes that the average annual won to dollar exchange rate and the average annual yen to dollar exchange rate are 1,000 won and 76,100 yen, respectively. As a result, Korea's economic growth rate for this year would drop off 1.8 percentage points on a strong won and weak yen. Export growth rate also would slide 2.0 percentage points. Machinery and automobile, areas in which the country competes fiercely with Japanese firms on export

markets, would suffer a sharp contraction, losing 7.5% and 6.4%, each. Current account surplus would fall by US\$12.5 billion, and the rate of growth in consumer prices would drop 0.4 percentage points.

The second scenario is based on even more dangerous assumptions. It assumes things will be an exact repeat of 2007, with the won/dollar exchange rate of 930 won and the yen/dollar rate of 118 yen. That would push down Korea's economic growth rate by as much as 3.8 percentage points, resulting in a 1.0% degrowth, given the Bank of Korea's economic growth forecast of 2.8% for this year.

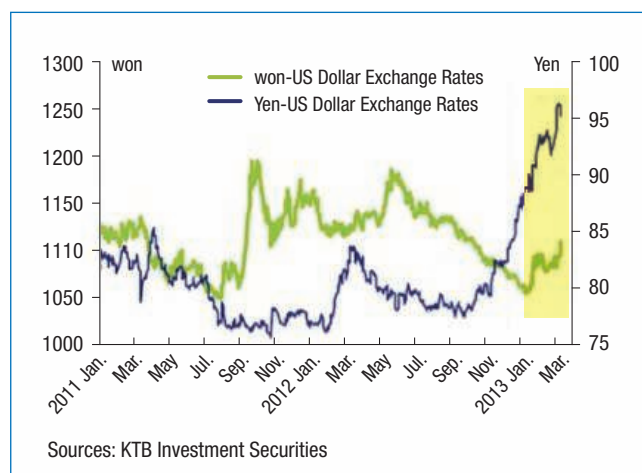
Export growth rate would decline 4.2% percentage points and current account surplus US\$25.5 billion. Exports would fall in such fields as machinery, automobile, and electricity & electronics by 32.2%, 27.6%, and 16.3%, respectively. Under these circumstances, as much as 85.9% of all exporting companies would see their operating profits swing into negative territory, a rate more than twice as high as the current rate of 33.6%, at the time when the won-dollar and the yen-dollar exchange rates stand at 1,082 won and 94.5 yen, each, and much higher than the 68.8% under the scenario 1. A whopping 92.9% of carmakers and 91.0% of electrical & electronics companies would be underwater. Rate of operating profits would plummet to negative 10.1% for large companies and negative 13.3% for small –and medium-size ones.

Jung said, "In order to recover from the shock of a strong won and weak yen, a trend that hasn't emerged in Korea over the past five years, comprehensive countermeasures need to be put in place." He urged the authorities to introduce "Tobin Tax" and impose ever-stricter regulations on short-term foreign debt and the foreign currency liquidity held by financial institutions. He also recommended that companies strengthen their core competitiveness by focusing on high-tech, high value-added areas while keeping a tight rein on currency risk and costs.

## Introduction of "Tobin Tax"?

"The won-dollar exchange rate has gone up since the beginning of this year to attenuate the strong won trend but the government is going to continue easing the high market volatility with regard to the inflow and outflow of foreign





capital,” said also the foreign exchange authorities on March 14, when the exchange rate soared during the intraday trading. The intention is to stick to its principles by taking preemptive measures against excessive capital movement regardless of the foreign exchange level. Those in the authorities are coming up with somewhat different opinions though.

Bank of Korea Governor Kim Choong-soo spoke to reporters on the same day that he is not mulling over introducing new foreign exchange-related regulations for now, which is a little contrary to what Deputy Minister for International Affairs Choi Jong-koo at the Ministry of Strategy and Finance said in late January: “We need to go over some taxation policy for the stabilization of the foreign exchange market based on the concept of the Tobin tax.” The Korea Capital Market Institute, on its part, published a report on March 13 on European countries’ introduction of financial transaction taxes and its implications to Korea, claiming that a sort of Tobin tax in Korea could increase forex market volatility contrary to expectations.

Some in the authorities are saying that it is the Ministry of Strategy and Finance that calls the shots on forex-related regulations and therefore the Bank of Korea is in no position to argue about the matter. According to them, the remarks of the central bank governor and the report from the institute do not have to be subject to broad interpretation since those are just some reiteration of basic principles.

However, market watchers are saying that the degree and extent of market stabilization measures cannot have nothing to do with the movement of the foreign exchange rate. Their idea is that now is not the right timing to discuss a Korean-style Tobin tax because the issue emerged when the year changed amid the rapidly falling won-dollar exchange rate.

The government is pondering upon its market stabilization plans as well since it cannot fully ignore the opinions of market participants and the academia for a cautious approach. The authorities are paying particular attention to international trends. If advanced economies, including the EU, opt to postpone the introduction of or not to bring in the Tobin tax, it

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will not be easy for Korea to have its own way. This is even more so because of the Code of Liberalization of Capital Movements of the OECD.

Of course, each OECD member nation can put off the application of the rules depending on its circumstances. For example, Israel has recently decided to do so while implementing the new law stipulating that 10% of the turnover be deposited mandatorily in foreign exchange derivatives trading. Nevertheless, the consensus is that Korea has a relatively weak standing in the international capital market and thus it is burdensome for it to take its own course.

Moreover, there is no guarantee that market regulations such as the Tobin tax will bring practical benefits to the local economy. “The possibility cannot be ruled out that tighter regulations could pass along the related costs to the private sector and the national economy in general,” said a high-ranking official in the government, adding, “The conclusion will have to be made only after some thorough analysis of the positive and adverse effects of the regulations.” Under the circumstances, it is expected that the authorities will give more consideration to the market stabilization measures while being more careful in choosing the timing to announce the results.

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### Aggressive M&As amid Strong Won

## Korean Companies Are Searching the Targets More Aggressively



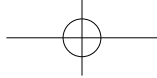
Major Korean corporations are speeding up the merger and acquisition of foreign companies with the global economy showing some signs of recovery and conditions favorable for M&A being formed amid the strong won and low interest trends.

These days, the Korean office of Permira, one of the largest private equity funds in Europe, is finding itself flooded with inquiries from large businesses as well as requests for interviews concerning cross-border M&A. "The number of such requests was close to zero until last year, but major local corporation with abundant cash are seeking M&A opportunities very aggressively in Europe more recently," said Lee Soo-yong, who represents the regional office.

Kim Sae-jin, associate lawyer at Paul Hastings, echoed by saying, "We're already engaged in four cross-border M&A and investment projects going on and have received no less than six new inquiries in this year alone, which has been quite unprecedented for the past 10 years in our overseas M&A business." He continued, "This year will be the year when the largest number of M&As are made since the Lehman crisis in that not only the top 10 in the industry but also many more companies of middle standing are looking to take over foreign firms by means of their own teams to that end. Though Korean companies' M&A efforts that had continued since 2007 came to a halt in the wake of the Lehman Brothers debacle, they didn't get rid of the teams and are moving to make better use of them now as the global economy is recovering."







## Seoul Bourse

# For Foreign Exchange Gains?

Vanguard, the largest ETF manager in the United States, disposed of a large amount of Samsung Electronics shares leading up to March 15 as the change in the method of the FTSE index calculation finished that day. This caused the stock price of Samsung Electronics to fall below 1.5 million won.

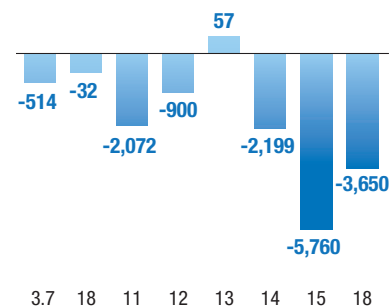
However, from March 18, Vanguard does not have to do so. With the benchmark index having been changed from MSCI to FTSE, it has only to sell approximately 1.4 trillion-worth more shares until late June or early July. Under these circumstances, stock market experts expected foreign investor selling would ease up, but they continued to sell stocks in the Korean market.

It is said that this net selling is attributed to Cyprus' application for bailout that stoked concerns about another fiscal crisis in Europe and caused global investors to rush to risk-free assets. "Given that stock market indices fell across Asia, the bailout application seems to have had some negative effects on the Korean stock market as well," Daewoo Securities analyst Han Chi-hwan said, adding, "Funds are heading toward the US again to avoid uncertainties in emerging markets."

Some market insiders are also claiming the Galaxy S4, unveiled last year, fell short of market expectations, dragging down the stock price. "Foreign investors' net selling is concentrat-


Foreign Investors' Net Buying and Selling in Korean Stock Exchange

(unit: 100 million won)



ed in the IT sector, particularly Samsung Electronics," said Eugene Investment & Securities analyst Kwak Byeong-yul.

Another possible reason for the capital outflow is that a change in the index calculation method has yet to be wrapped up. "The method has been changed, but funds other than Vanguard that benchmark the index still have to finish their investment portfolio adjustment," remarked Daishin Securities research analyst Park Joong-sup, adding, "Foreign investors' future movement in the local stock exchange will be determined by how soon the portfolio adjustment is completed."

Some experts are predicting that foreign investor selling will be temporary. "In spite of Cyprus' application for bailout, the won-dollar exchange rate has not surged," said Han Chi-hwan, adding, "Given the foreign exchange movement, the Cyprus risk is likely to have a limited and short-term impact on the local stock exchange at best." Park echoed this, saying, "With the won-dollar exchange rate at over 1,100 won per dollar, foreign investors are expected to come back soon for some exchange gains once the index calculation change is over." 

## KB Financial Holdings

## ISS Opposed to Outside Director Appointment

Proxy advisory firm Institutional Shareholder Services (ISS) opposed KB Financial Holdings' appointment of outside directors regarding the failure the acquisition of ING Life Insurance and their close connection to the government. Under the circumstances, the appointment is unlikely to be made at the general meeting of shareholders scheduled for March 22 because foreign institutional investors tend to follow the ISS's opinion.

The organization published an examination report regarding the issue on March 12, saying that it is opposed to the appointment of the three recommended nominees -- Lee Kyung-jae, Bae Jae-wook and Kim Young-gwa.

"The five outside directors led by Lee Kyung-jae were opposed to the takeover of ING Life at the final vote even when the board of directors had given the green light to an amount between 2.42 trillion and 2.9 trillion won," the report said, continuing, "The failed attempt to acquire ING Life has resulted in severe leadership problems."

It went on, "Furthermore, Lee Kyung-jae, Bae Jae-wook and Kim Young-gwa are very closely connected to the government and the shareholders should stand against them to strengthen the political independence of the company. In Korea, there is a deep-rooted tradition of hiring former bureaucrats but it is doubtful whether it serves the interest of shareholders."

ISS is a subsidiary of Morgan Stanley Capital International (MSCI). It analyzes issues related to general stockholders' meetings and provides its opinions to more than 1,700 institutional investors around the world.

## China's Industry Restructuring

# Expected to Deal a Blow at Korean Companies

The Chinese government is moving ahead with industrial restructuring programs to pose a potential threat to the information technology industry of Korea.

According to the March 13 report published by the trade center of the Korea Trade-Investment Promotion Agency (KOTRA) located in Shanghai, the Chinese government is reorganizing nine key industries, including automobile, steelmaking, shipbuilding and IT. The purpose is to promote M&A led by big businesses in the interest of industrial balance with more and more small-scale firms in the country flocking to a

handful of booming industries.

The trade center predicted that its restructuring programs in the IT sector would have the biggest impact on Korean companies by significantly enhancing Chinese players' global competitiveness. China is planning to produce two to five more world-leading IT enterprises to follow in the footsteps of Huawei and HTC by 2015.


The report also pointed out that Korea should pay more attention to the future growth of China's automobile sector. Experts in China are currently urging the government to weed out those finished car manufacturers

*Experts in China are currently urging the government to weed out those finished car manufacturers producing few or no products*

producing few or no products. The restructuring programs are expected to be somewhat unfavorable for Korean automakers but have opposite effects on auto parts companies because they can lead to increasing exports to China.

In the meantime, approximately one-third of Chinese firms in the shipbuilding industry are forecast to be driven out of the industry as the economic recession is accelerating but it seems that more time will be needed for some actual restructuring and M&A results. This is because major local shipbuilders are going through severe financial problems now and they are accounting for a large portion of local taxes in each local government. The report added that China's restructuring efforts in the steel-making and shipbuilding sectors would have little impact on Korean companies since Korea is ahead of China by a large margin in the industries.

"Down the road, 10 or so major conglomerates will be leading those industries exercising greater influence in the markets," said Kim Sang-chul, director of the trade center, continuing, "That could be unfavorable for some Korean companies but the others will be able to get an opportunity to export more of their products with the big businesses going for higher quality."

China's cumulative exports for the first two months of this year reached as high as 23.6% . 



## FTA in East Asia

## Korea, Japan, China to Launch Free-Trade Agreement Talks

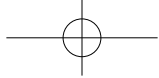
The first round of negotiations for a free trade agreement among South Korea, Japan, and China will be held on March 26 through March 28 in Seoul.

The three countries will launch negotiations in 10 years after they began a joint research on FTA back in 2003. They declared the opening of negotiations last November and agreed to enter into a negotiation this year.

During the first round of vice-ministerial (working-level) talks, attendees are expected to determine the scope of negotiations, including target projects, countries of origin, trade remedies, service & investment, and intellectual rights.

Meanwhile, apart from the negotiations, Korea and China will hold the fifth round of Korea-China FTA negotiations this April in China. Also scheduled for this May is the first round of negotiations for the Regional Comprehensive Economic Partnership (RCEP) joined by 10 members of the Association of Southeast Asian Nations (ASEAN) and a total of 16 countries, including Korea, Japan, China, Australia, India, and New Zealand.





## Chinese Funds

# Flowing into Korean Stock Market on a Large Scale



Chinese funds are rapidly flowing into the Korean stock market these days to draw the attention of many. Securities analysts are saying that the investment is being made by funds run by Chinese asset management companies.

According to the Financial Supervisory Service, Chinese investors have recorded a net buying in the Korean stock market for four months in a row since November last year. No less than 3,037 billion won has flown into the market during the period alone. In particular, the total amounted to 1.238 trillion won in February to set a new record, much higher than the preceding month's 539.4 billion won. The sum reached 1.777 trillion won during the first two months of this year and it is already close to last year's total at 1.780 trillion won.

Under the circumstances, the worth of the shares Chinese investors own in the Korean stock exchange added up to 8.083 trillion won as of the end of February to post a 29.7% growth from a year earlier. It is equivalent to 1.9% of the total market capitalization and they are currently ranked 11th in terms of the amount. The financial industry is paying keen attention to the movement of the


funds as the size of the inflow is showing some remarkable growth to exercise much greater influence than before on the local bourse. Industry experts are busy trying to define the funds to tell whether the massive inflow will continue and what impact it will have down the road.

Korea Investment & Securities published a report on March 6, saying that the recent trend seems to be being led by qualified domestic institutional investors (QDII) in China. QDIIs are those financial institutions permitted by the Chinese foreign exchange authorities to make investments in overseas capital markets.

"China's overseas investment is led by its sovereign funds, including the State Administration of Foreign Exchange and the China Investment Corporation, and the QDIIs," said Lee Su-jung, researcher at the company, adding, "Allowing for the characteristics of each, it's likely that the investment as of late is driven by the QDIIs." The SAFE is focusing on low-risk US Treasury bonds and the CIC has decreased its stock investment portion since 2012.

One of the Chinese government's top-priority goals for its 12th Five-

year Plan, which covers the five-year period starting from 2011, is the expansion of overseas investments and it is increasing the proportion of the financial industry in its national GDP to 5% in this context. The number of QDIIs and their sizes are increasing at a rapid pace to meet the policy goal. The number was 109 in all as of the end of January and their combined asset size was US\$85.527 billion.

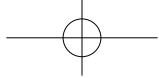
The QDIIs can be divided into banks, insurers and asset management companies. "Banks and insurance companies have their own ceilings when it comes to overseas investment and thus the recent capital inflow is likely to be by Chinese asset management firms," said the researcher. "By country, Korea accounted for 6.5% of Chinese QDIIs' overseas investment to rank third as of the end of 2012 while Hong Kong's percentage had declined continuously from 79.6% to 61.2% between the ends of 2007 and 2012," she continued, "This implies that Chinese funds are now moving to Korea to be less lopsided to the Hong Kong market, which can be helpful for the Korean stock market to buttress itself." 

## Net Purchase of Korean Stocks by Chinese Funds

(unit: 100 million won)



Source: Financial Supervisory Service



## Woori Financial Group

# FSC Chairman Suggested a Major Overhaul



Shin Je-yun, who has taken office as the chairman of the Financial Services Commission, suggested that a complete overhaul is necessary for the Woori Financial Group after a series of failed attempts at its disposal. “The Woori Financial Group has been an unattended company since the injection of public funds, the sales capacity being on the decline and the employees turning to outsiders for personnel matters, and we can’t sit back and watch the situation any longer,” he said.

Under the circumstances, close attention is being paid to whether and how the corporate governance structure will be changed down the road. The nominee also expressed his will in a roundabout way to filter out some of the non-executive directors engaged in influence peddling, quoting the proverb of “When the cat is away, the mice will play.”

He had an interview with the Seoul Economic Times for over an hour from 11:15 pm on March 2, after his nomi-

nation, in his own house and said what he has in mind concerning future policy directions. He remarked first of all, “These days, Woori is where the largest number of requests for special favors are made and I think that at least the moral part should be corrected if the company remains unattended for the time being.” The nominee continued, “With the privatization of the company remaining in stalemate, the organization is going political and this is what I’m worried about the most.”

With regard to the way of disposing of the financial group, he stressed that he would not allow the disposal by means of the government-issued stock preferred by the political community. “Finance is what experts do and something like a people’s share program will only result in the people spending their time watching the movement of the price of their stocks instead of doing their jobs,” he remarked, adding, “We’ve already seen the failure of POSCO and KEPSCO, both

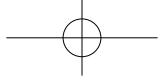
of which have become de facto foreign companies.”

He also mentioned the problem of the financial industry driven by political motivations. “When the industry is not in good hands, politicians take advantage and then the mice come to play,” he said to criticize some of the politicians trying to intervene in the industry and financial industry figures that are taking advantage of them to get promoted.

Meanwhile, he advocated the country’s policy finance institutions. “There are some people saying that policy finance has some problems, but it is well taken care of by a few charismatic figures and it has no problem at all on the moral part, either,” said the nominee.

In the meantime, at the press conference right after his nomination in the afternoon of that day, he announced that he would not mull over raising the loan-to-value (LTV) and debt-to-income (DTI) ratios for a while. Still, he implied the necessity of some housing market measures by saying, “We need the revitalization of the real estate market as much as the soundness of financial companies matters and the two, in fact, are things closely connected to each other.”





### Export-Import Bank of Korea

# Promoting Win-Win Growth by Providing Tailored Support for SMEs

The Export-Import Bank of Korea is being praised for helping Korea reach US\$1 trillion in trade volume by means of tailored support packages for local exporters.

Last year, the state-run bank expanded its support for small-scale exporters to help them tide over their business difficulties caused by the European fiscal crisis and the delayed economic recovery in developed countries. The bank provided 72 trillion won of funds in 2012 alone, with 23 trillion won of this going to small and mid-size companies.

At the same time, the financial institution put forward tailored support measures so that they can make inroads into overseas markets and survive there successfully. The measures gave rise to seven so-called hidden champion companies between 2009 and July last year. The term hidden champion can be defined as a company with annual exports of at least US\$300 million, an exports-to-sales ratio of 50% or higher, and sales of one trillion won or more or a global market share ranking of fifth or higher.

The support measures include the Global PaSS Program, in which major local corporations cooperate with their smaller partners by entering into agreements. A total of 1.1 trillion won of funds was supplied to the program for shared growth last year. The Global PaSS Program is divided into three parts: Partnership in Overseas Business in the interest of small firms looking to penetrate overseas markets in tandem with big businesses; Sustainable Growth with SMEs for companies that own advanced high technologies; and Seed for the benefit of vulnerable social groups.

The first subprogram's purpose is to



provide prime-rate funds for those small and mid-size enterprises (SMEs) that are doing business abroad in conjunction with the bank and major corporations. The second is to provide performance guarantee and operating funds required for SMEs in new growth industries, such as software development and knowledge service, in order to make better use of their advanced technologies for stable business. The last is to utilize 0.5% of the profits earned from large corporations' overseas projects as financial resources for social contributions in order to help the vulnerable members of society.


The bank is also continuing to buttress small-scale exporters this year. It will provide 22.5 trillion won until the end of this year, which is 45% of its lendable funds, by reshaping its financial products and raising its funding limit. Furthermore, it is planning to establish a new policy division to be responsible for growth stage-specific financial assistance, while introducing combined revolving credit, increasing the tolerance limit of the loan currency conversion option from once to twice, and raising the maximum limit of its forward exchange services, etc.

The revolving credit is to perform credit evaluation on exporters and set an annual credit line for each so that these companies can be given funds conveniently within the credit line on a yearly basis. The increase in the tolerance limit is to allow borrowers to convert their loan currency up to twice in an effort to minimize foreign exchange risks. The



maximum limit of the forward exchange services, in the meantime, is to be increased from US\$2 million to US\$5 million so the exporters can conduct currency exchange at a predetermined exchange rate on export proceeds to be received in the future.

Another key project of the bank this year is the Global PaSS Shared Growth Program. The scope of beneficiaries will be expanded to second and third-tier vendors in cooperation with big businesses, with 1.3 trillion won in financial resources being offered to them in an attempt to improve the program both qualitatively and quantitatively. Other various support methods are to be adopted in this vein for target-specific aid, allowing for companies' credit rating and development stages, etc. For example, comprehensive support measures will be brought in for firms that deliver their goods on a rolling basis, while sales credit guarantee will be used for those with a low credit rating.

In addition, 50 more companies are to be selected this year in the Hidden Champion Project. The beneficiaries are slated to receive such benefits as business consulting and foreign exchange risk management. 



## Need of New Paradigm

# Heavy Reliance on Major Items and Exporters Weakening Competitiveness

It has been found that Korea still relies heavily on the export of IT products and thus is highly vulnerable to external shocks. Besides, its small businesses' and middle-standing enterprises' proportion in total exports is on the decline although the country has become the eighth-largest trade country. As major corporations are increasing their overseas investment, the competitiveness of the export industries of Korea is weakening, too. Experts are pointing out that the country needs to diversify its export items like Germany, which has remained an exporting powerhouse for a very long time.

The Ministry of Knowledge Economy quoted the statistics from the World Trade Organization (WTO) on March 4 to announce that Korea's trade volume reached US\$1.067 trillion in 2012 so the country took the eighth spot beating Italy. The top ranking went to the United States, which was followed by a narrow margin by China. Germany, Japan and the Netherlands came in third, fourth and fifth, respectively. Korea, Germany and the Netherlands were found to have fared well during the past 10 years whereas Japan and Italy showed a rather poor performance.

Nevertheless, Korea's dependence on a few major exporters is on the rise. According to the ministry, small and midsize enterprises (SMEs) accounted for only 33.0% of the country's total exports in 2011, approximately 10 percentage points lower than the figure recorded in 2001. Furthermore, Korea is by far lagging behind the others in terms of the number of market-leading items due to the severe lack of small yet globally competitive companies like so-called hidden champions in Germany. At present, the number amounts to 1,431 for the China, 589 for the United States and 229 for Japan but just 61 for Korea.

At the same time, Korean companies are stepping up their overseas investment to slow down the growth of the export base. The size of the investment increased from US\$7.2 billion to US\$23.2 billion between 2005 and 2012 while a large number of Korean companies transferring their production bases. "If Korea is to be able to remain a leading exporter, knowledge-based industries like finance, engineering and logistics should be further grown and more foreign-invested companies should be attracted for a firm industrial foothold," said the ministry.


In the meantime, the Hyundai Research Institute published a report on March 5, titled "Comparison between Korea's and Germany's Export Industry Structures and Its Implications," and analyzed how Germany could remain a leading exporter for the past decade unlike Japan and the United States. According to the report, China's global export market share went up by 6.8 and Germany's by 0.2 percentage points from 2000 to 2011 while those of the US and Japan

fell 3.8 and 2.7 percentage points.

The report said that the distinguished achievement is because Germany is not dependent on certain export sectors, items or companies. The machinery and automobile sectors take up 19.9% and 19.7% each of the country's total exports and the electric & electronics and petrochemical industries 18.2% and 16.2%, respectively. This is why Germany has been able to maintain an export structure well-protected from external impacts.

In contrast, the electric & electronics industry alone accounts for 31.7% of the total exports from Korea, which means that the export competitiveness of the entire country could be jeopardized once it fails to keep abreast with global technological trends like Nokia and Finland did. Korea's index of export diversification stands at 7.5 as well, much lower than Germany's 9.3.

Germany does not depend on large businesses for export and its small firms' price competitiveness is considered to be high enough. Although both Korea's and Germany's 10 major export items are supplied mainly by their large companies, the degree of dependence is as high as 38.8% for Korea but 17.3% for Germany. SMEs in the latter are increasing their export of electrical equipment and processed metal goods whereas those in the former are still engaged mainly in low value added products such as textile and garment.

"Diversification of export items must be achieved as soon as possible by SMEs and more R&D investments should be made to sharpen their competitive edge enough to survive in the global market," said Baek Da-mi, researcher at the institute. 



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Nowadays, the water industry is emerging rapidly as a blue ocean industry, with water shortage and pollution problems worsening around the world amid global climate change.

According to the United Nations, 34.7% of the world's population is currently suffering from water shortage, and this figure is likely to go up to as high as 44.9% by 2050. Furthermore, global water requirement is expected to increase by approximately 40% by 2030, further exacerbating the situation. Korea is one of the so-called 'water-stressed' countries, ranking 129th out of 153 nations in the recent UN report, with its available annual water resources per capita standing at just 1,453m<sup>3</sup>.

UK-based research firm Global Water Intelligence recently announced that the global water market is estimated to have reached US\$482.8 billion in 2012, and will grow 4.9% on average annually until 2025, thus totaling US\$865 billion.

Helmut Kaiser Consultancy, a global consulting firm from Germany, meanwhile forecast that it will reach US\$1.407 trillion by 2025.

Water supply and sewage account for 76.8% of the market for now, but seawater desalination and water recycling are expected to show remarkable growth down the road. By industry segment, water treatment has the highest potential annual growth rate at 7.6%, led mainly by the construction of reverse osmosis desalination facilities and water reuse facilities. The growth of these two fields is estimated at 10.8% and 14.5%, respectively. Under such circumstances, many countries around the world are competing fiercely to take the lead in the water treatment industry.

At present, the international water market is dominated by a handful of multinational companies, including Veolia Water and Suez, while French, Japanese and other governments are

# Water Industry, “Blue Gold” of 21st Century

Korean government endeavoring to enhance total solution capabilities of water companies by seeking their participation and helping develop original technologies



working on comprehensive strategies and providing national-level support for market dominance. Israel and Singapore are also emerging as water industry powerhouses by means of effective policy support.

Developed nations such as the United States, Japan and those in Europe are moving towards advanced water treatment and reuse, a safe and stable procurement and management of water resources, as well as various energy-saving plans in the interest of sustainable economic growth in response to climate change. They have introduced the concept of water reclamation plants for improved sewage disposal, as well control over harmful substances in sewage. At the same time, the importance of cutting-edge water treatment systems is on the rise, along with the number of types of micro-pollutants and chemicals that will render existing systems useless. In short, the paradigm of the water industry is shifting quickly from water supply and sewage treatment, desalination and water recycling, to future-oriented technologies and market expansion.

Korea's water industry, on its part, is expected to see explosive growth because the government is showing a strong will to take it to another level so as to better tackle the problem of water scarcity. In addition, the public at large have a higher level of expectation than before in regards to water quality.

Korea has a sharp competitive edge in some segments of the industry. For example, it is second-to-none in terms of global seawater desalination market share. Still, it has yet to catch up with advanced nations when it comes to high technologies like smart water supply, intelligent water networks and water treatment plant development. Korean companies have abundant experience in plant design and construction, but their expertise is still shallow as far as water management, financing and total solution services are concerned.

Fortunately though, not a few companies are striving to develop their water-related business, well aware of the significance of the industry. "More and more major corporations in Korea are expanding both at home and abroad in order to increase their presence in the fast-growing world water market, and thus their competitiveness will become tighter day by day," said a high-ranking government official.

#### **Eight Global Leading Water Companies Expected to Appear by 2020**

In the meantime, the Lee Myung-bak Administration announced new national strategies for the promotion of the water industry back in October 2010. The goal is to join the ranks of water industry powerhouses by turning eight water companies into global players capable of providing total services by 2020, as well as developing original technologies such as advanced membrane filtration and smart water supply.


In this context, the government is planning to enhance its competitiveness in the global market by putting innovative technologies to commercial use. A total of 3.461 trillion won is scheduled to be invested in the industry by 2020, 687.1 bil-

lion won of it going to the development of key source technologies. Intelligent water production and supply systems based on information technologies are to be developed, along with separation membranes using state-of-the-art materials, related processes and management and operation techniques.

Furthermore, the government is moving ahead with plans to group the 164 water-related businesses currently operating on a national and municipal level into five regional zones by 2030 in an attempt to provide them with greater total solution capabilities. Its sewerage administration, which is currently entrusted to private-sector firms, will be reorganized before being run by leading companies dedicated to the business. Green industry complexes are also to be built so that corporations, research institutes and human resources trainers can redouble their efforts for technological commercialization and overseas market penetration in close cooperation with one another.

#### **Global Infrastructure Funds Expanded to Two Trillion Won**

The government is also aiming to come up with market-specific analysis for tailored overseas expansion strategies, while connecting the development of natural resources, construction and plant engineering with the industry and providing more financial support in the form of green funds, global infrastructure funds, and official development assistance, etc. The funds available for the overseas construction sector stand at just 400 billion won as of now, but the total amount will increase to two trillion won.

The domestic water market in Korea is worth US\$10.1 billion, just 2.1% of the worldwide total, and the establishment of water supply and sewage treatment infrastructure has been almost completed, implying that the growth potential of the domestic market is limited at best. However, Korean water companies' combined sales in overseas markets stood at US\$1.42 billion in 2011, less than half a percent of the global total. To help strengthen their overseas water business, the government is supplying more professional engineers, setting up extensive statistical and information systems and seeking closer cooperation with foreign market leaders. In addition, it intends to foster private-public partnerships so more international projects can end up in the hands of Korean companies, while also launching a new association consisting of state-run enterprises like the Korea Water Resources Corporation, private-sector enterprises and industry and academic experts in order to promote successful market penetration. 

## Ministry of Environment

# Working on Innovative Policy for Growth of Water Industry

“We’ll ensure sustainable growth of water-related businesses in Korea and create new jobs by expanding reinvestment in the water supply and sewage treatment sectors,” said Water Supply and Sewerage Policy Division head Choi Jong-won at the Ministry of Environment, the organization responsible for promotion of the country’s water industry and water resources management. He continued, “The ministry will do its utmost to foster the blue gold industry for the future.” Business Korea sat down with director Choi.

## What is the background of the Korean government’s policy for water industry promotion and what have been the results?

During the rapid economic growth of the past, Korea depended on other countries for advanced water-related technologies, which resulted in the sluggish development of and investment in source technologies. To address the situation, the government came up with plans to promote the industry back in February 2006, consisting mainly of the development of original technologies and the expansion of related infrastructure. More recently, it presented new strategies designed to open up the global water market and join the ranks of industry leaders by 2020 by focusing on enhancing water-related businesses’ total solution capabilities.

As a result, the country has succeeded in developing some advanced source technologies, including membrane filtration and pipe network diagnosis, on its own through continuous R&D efforts.



Choi Jong-won, the head of Water Supply and Sewerage Policy Division at the Ministry of Environment

Particularly, it has developed a separation membrane that can be used in large-scale purification plants and applied it to the Yeongdeungpo Purification Plant, achieving remarkable growth in the field of advanced treatment. Furthermore, it has set the stage for overseas market penetration by helping private-sector companies improve their filtration plant management capabilities.

## What technologies are the Ministry of Environment concentrating on during the course of the Eco-Innovation Technological Development Project?

A total of 233.5 billion won will be invested three subprojects associated with the water supply and sewage treatment sectors by 2020. Specifically, these three subprojects will be divided into Eco-smart Water Supply System R&D Project for the development of cutting-edge water treatment systems; the Intel-

ligent Water Distribution Network R&D Project for comprehensive water distribution network management and smart sensor networking; and the Advanced Wastewater Treatment Technology Project to work on energy-independent membrane filtration and water treatment technologies for the more effective reuse of wastewater. All of these share the same goal of making original and advanced technologies associated with the industry on par with global market leaders.

## What is the government doing for global market penetration and where does Korea stand in the global water industry?

Korean water-related company exports have increased by at least 20% every year since 2008, with the figure reaching US\$1.4 billion in 2011. The government has signed environmental cooperation MOUs with 41 countries to help companies make inroads into the global market, while helping less developed countries create environmental policy in the framework of a national master plan. As an example, the ministry provided 600 million won in 2011 for the restoration of the El Harrach stream in Algeria.

## What do you think of the technological competitiveness of water-related businesses in Korea?

They are considered to be evenly matched with market leaders as far as conventional water supply and sewage treatment technologies are concerned, but four to seven years behind when it comes to advanced water treatment and

*Korean water-related company exports have increased by at least 20% every year since 2008, with the figure reaching US\$1.4 billion in 2011. The government has signed environmental cooperation MOUs with 41 countries to help companies make inroads into the global market*

water distribution management. The chance of the development and commercial utilization of core technologies has been very slim, meaning the government's long-term support and investment is indispensable.

#### **What is your opinion regarding the total solution service capabilities of companies in Korea?**

Down the road, the global water market is likely to be led by companies equipped with total solution capabilities ranging from design and construction to financing, operation and management. Today's water market is dominated by multinational corporations such as Veolia Water and Suez. The Korean government, in this vein, has set up a cooperation system with local governments and the private sector to allow private enterprises to accumulate business experience in the field of water supply system operation. Furthermore, the government has placed test beds in purification plants for R&D purposes in an effort to enhance the companies' operation and management capabilities. In addition, the water industry cluster currently under construction in Daegu City will contribute to the same goal in connection with other environmental and demonstration facilities.

#### **Another important issue is the revitalization of related industries. What are the government's plans regarding this?**

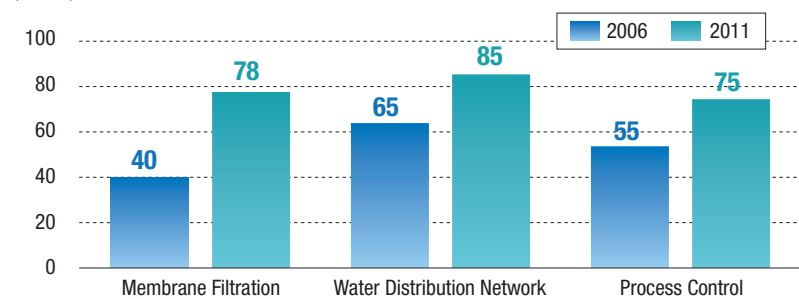
Water reuse and recycling, one of the largest segments of the industry, is



Discussion on the cooperation for the restoration of the El Harrach stream in Algeria.

#### **Self-development Rate by Key Original Technology in Water Industry**

(unit: %)



expected to grow at least three times faster than the water industry in general. Under such circumstances, the government enacted the Promotion of and Support for Water Reuse Act three years ago, yet the segment is still in its infancy in Korea. In order to accelerate growth, the government will increase subsidies while putting advanced wastewater treatment technologies to commercial use as early as possible. It is also planning to come up with a national brand applied to bottled water products exported abroad, as well as continue developing new resources in order to broaden the industrial base.

#### **What is the future policy direction for promotion of the water industry?**

The ministry's policy direction in the industry focuses on the improvement of water-related welfare and job

creation, the same as Park Geun-hye government's policy stance. More reinvestment will be made in the water supply and sewage treatment infrastructure so that everyone can enjoy high quality water-related services. At the same time, basic water facilities will be further advanced and more investment made in the commercial utilization of water supply network technologies in an attempt to develop original technologies and provide clear, safe water to people. The water industry cluster in Daegu, which is scheduled to be completed in 2017, will lead to systematic support throughout all phases of the water industry, from technological demonstration and production to overseas business expansion. It will make a significant contribution to Korea making strides in the international water market and becoming a global powerhouse in the industry. **BR**



## Ministry of Land, Infrastructure & Transport

# In Charge of Water Quantity Management

With the importance of water resources increasing amid climate change, the Ministry of Land, Infrastructure & Transport set a new policy direction regarding the procurement and management of water resources by including the enhancement of national disaster management systems and adaptation to climate change in the 140 top-priority national policy tasks of the Park Geun-hye government.

“We’ll focus on the maintenance of tributary streams, which are still vulnerable to water-related problems, while strengthening the safety of existing dams and improving water supply and underground water resources,” said Jun Hyeong-pil, head of the Water Resources Policy Division of the ministry, adding, “At the same time, we’re planning to shore up the consolidated management of water facilities such as dams, reservoirs and streams, and set up new plans covering urban basins, sewerage and detention ponds susceptible to floods in order to maximize the storage

function of such areas.”

He went on, “The purpose is to attain the goal of a country without water-related concerns and better meet the needs of the people regarding leisure spaces by dividing streams into waterfront, water preservation and restoration areas in the framework of basin-specific stream management plans.”

Until recently, the water industry was defined as a series of activities and industrial segments for producing and supplying residential and industrial water, and transporting and treating wastewater. However, water resources management is becoming an increasingly important issue in the global arena these days as the world population is soaring and urban concentration is accelerating, giving rise to an ever larger number of megacities.

“Floods and droughts are compounding problems with water supply and management, while the population increase and urban sprawling are making things more and more difficult on the demand side, which poses a great challenge in terms of water resources management, but presents an opportunity from an industrial viewpoint,” the director stated, adding, “Therefore, we need to define the water industry more broadly to include the urgent necessity of environmental improvement.”

At present, the global water market amounts to approximately US\$500 billion in size; roughly double that of the semiconductor and shipbuilding industries. According to the Global Water Institute (GWI), the water and sewer sectors account for 77% of the market, followed by the bottled water market (12.2%) and water-related service

(5.7%). However, Korea’s overseas water market penetration stood at just US\$1.42 billion as of the end of 2011, merely 0.4% of the global market, with business limited to water supply, sewage treatment and seawater desalination.

A local research institute announced back in 2010 that Korea’s water industry ranked 14th among the top 20 countries, with its technological strength considered to be 70% to 80% that of advanced economies. Experts are pointing out that Korean companies have higher capabilities in plant construction, civil engineering, water treatment design and the like, but are lagging behind when it comes to total solution capabilities, including financing and operation experience. Under such circumstances, they are urging the government to integrate management resources among the Ministries of Land, Infrastructure & Transport, Environment, Knowledge Economy, Agriculture, Food & Rural Affairs and the National Emergency Management Agency, etc.

“Currently, the Ministry of Land, Infrastructure & Transport is in charge of water quantity management while the Ministry of Environment is responsible for the water quality side,” the director added, “The dual system has been causing difficulties due to separate legislation and policy planning.” He added, “A bill was tabled in the 17th and 18th regular session of the National Assembly regarding the establishment of a national committee for water resources management, but it failed to pass due to divided opinion, which means that further discussions are required concerning future policy directions.”



## North Gyeongsang Province

# Making Better use of Region-specific Conditions and Nurturing Membrane

Countries the world over are trying to dominate the market of water in advance by supporting the growth of water-related businesses and overseas market penetration.

North Gyeongsang Province (Gyeongsangbuk-do) is no exception. The region is home to abundant water resources, such as the six national rivers, including the Nakdong River and Hyeongsan River, and 10 dams, including Andong, Imha and Woonmoon dams. It is also close to the clean water resources of the East Sea and the Baekdu Mountain Range, as well as the spring water of Ulleung Island. In addition, it is the location of the East Sea Research Institute of the Korea Institute of Ocean Sciences & Technology, the Gyeongbuk Institute for Marine Bio-industry, the Gyeongbuk Marine Science Park and POSTECH, as well as various membrane manufacturers, deep sea water developers and bottled water companies, all of which make the region one of the best places for water industry promotion.

North Gyeongsang Province will hold the 7th World Water Forum in 2015 in accordance with its water industry promotion plan established back in 2011. "We've decided to play host to the forum, which is seen as the Olympics of the water industry, to join the international community's efforts to deal with water scarcity on a provincial level, as well as build on the opportunity to promote the industry as our region's future growth engine," said Choi Jong-won, who heads the Department of Environment, Maritime and Forest Affairs of the local government. He continued, "To this end, we've acceded to the World Water Council and signed the Istanbul Water Consensus." Specifically, the



Choi Jong-won, heads the Department of Environment, Maritime and Forest Affairs


province is planning to establish regional water industry clusters by making use of its water resources and R&D infrastructure, encourage the reuse of water through technological development, foster the manufacturing of membranes, which are one of the key materials for the industry, step up tourism marketing by connecting water ecological resources with historical and cultural assets, and globalize the water industry by hosting large-scale international events.

The local government established a new position, that of water industry planning officer, in early 2011. Since then, it has played host to more than 20 international events and academic conferences related to the water industry, e.g. the Korea Water Business Forum & Water Expo, the UNESCO-IHP International Symposium, the Membrane Enterprise Forum and the 2012 International Water Forum.

North Gyeongsang Province is also home to a number of water-related companies such as KOLON Industries and

Woongjin Chemical. "The global membrane filtration industry is estimated to grow 19.6% each year between 2007 and 2016, rising from US\$6.1 billion to US\$30.3 billion in size," the bureau director stated, adding, "Applied technologies associated with the segment are used in a variety of sectors, ranging from water treatment to fine chemistry, energy, food and pharmaceuticals, and these companies' competitiveness is considered second-to-none worldwide."

The local government participated in the 6th World Water Forum in Marseille, France last year, where it was designated the venue for the next conference. It has strengthened its capabilities to prepare for the forum since then by holding regular international events, such as the Na-Ri IWW, or Nakdong River International Water Week, which utilized the waterfront spaces of the river. Furthermore, it is striving to make the forum a success through closer cooperation with local self-governing bodies such as Gyeongju City and Andong City, as well as authorities such as the Ministry of Land, Transport & Maritime Affairs, the Korea Water Forum, the DaeGyeong Water Forum and the Korea Water Resources Corporation.

The economic ripple effect of the World Water Forum is likely to be significant. According to research by the Korea Research Institute for Human Settlements, over 30,000 people are expected to take part in the forum from both home and abroad, with approximately 1,900 new jobs estimated to be created. The direct spending and production effect and added value inducement are expected to reach 53 billion won and 146 billion won, respectively. 

## Daegu

# The City Will Be Transformed into a New Mecca of the Water Industry

The city of Daegu has some painful memories concerning water management, such as phenol spills and a repulsive smelling tap water in the 1990s. Since then, the city has strived to improve water quality by upgrading the infrastructure for water supply and sewage disposal, finally succeeded in transforming Geumho River from the so called river of death to a river of life in which otters can live.

With the water industry emerging as a new growth industry worldwide, Daegu plans to create a water-industry cluster along with its successful hosting of the “World Water Forum 2015” and thus transform itself into a hub of the water industry.

“Daegu is highly optimized for creation of a water-industry cluster. The city has abundant water sources from the Nakdong and Geumho rivers running through downtown, various related information technology (IT) and biotechnology (BT) companies, and easy access to professional human resources from local universities,” said Kim Booseop, who is in charge of the Environment and Green Area Bureau at the Daegu municipal government.

The Daegu municipal government has decided to begin the water-industry cluster project with 250 billion won of investment in national industrial complexes currently being constructed in Guji-myun, Dalseong-gun, Daegu. Under the project, it will establish the tentatively named “Korea Water Industry Promotion Agency,” a general water industry test-bed complex, and a water-industry company only complex by the year 2017.

The Korea Water Industry Promotion



Agency will function as a control tower fostering water-related companies, developing water-related parts and components, training professional workforces, and supporting water-related companies' business and marketing activities. It will feature the Korea Water Partnership Headquarters, the Water-industry Research Institute, a business center, and various other subordinate organizations.

The general water industry test-bed complex will feature various testing and supporting facilities for new technologies related to the management of water and sewage, the recycling of waste water, the upgrading of low-carbon parts and equipment for water treatment, the operation of smart water grids, and the development of IT-BT-NT convergence parts for water treatment.

The exclusive complex will measure 200,000 square meters. It is expected to attract roughly 200 water-industry companies and will strive to support their technology development, and marketing and overseas activities, and create a synergy effect through an inter-company technology and information sharing system. Kim said, “The creation of a water-industry cluster was one of the presidential campaign pledges. It has been initiated by the Ministry of Environment as a national project. The Daegu municipal


government came up with its own master plan to promote the water industry last year. From March this year, we plan to develop content suitable for our local situations and propose them to the central government.”

Kim added, “Beginning with the Ministry's contract for professional feasibility studies and planning in March, all execution drawings will be completed by next year. Following this, necessary facilities will be constructed from 2015 through 2017.”

Daegu has also made remarkable achievements in the assessment of water demand management. It earned high scores in the installation of water-saving appliances, the establishment of waste water reclamation and the reusing systems and recycling of waste water, when compared to other local governments.

Now the Daegu municipal government is spurring preparations for the 7th World Water Forum. It plans to form an organizing committee in April and hold a kick-off meeting featuring approximately 500 concerned parties from around the world at Daegu EXCO from May 13 through 15.

This meeting will be the first prep meeting for the forthcoming World Water Forum. It will promote the commencement of the event, share the results of the 6th forum held in France, and the direction of discussions through participant brainstorming sessions.

Daegu will also host Water Expo Korea in October this year for the second consecutive year. The event will be a good opportunity to promote the World Water Forum 2015 and the local water industry. 



GS E&amp;C

# Jumping into Water Treatment Market by Taking Over Inima OHL in Spain

GS Engineering & Construction opened a new chapter in the water treatment industry of Korea by taking over Spanish company Inima OHL. This is the first time that a Korean builder has acquired a global water treatment company headquartered in Europe.

Inima OHL is a fully-owned subsidiary of OHL, a construction group located in Spain, and one of the largest reverse osmosis (RO) desalination plant builders. It was established in 1957 and constructed the world's first desalination plant. Since then, it has set up more than 200 water treatment plants around the world. Recently, it completed RO desalination facilities in Algeria capable of treating 200,000 tons of seawater per day, as well as a sludge drying plant with a daily capacity of 384 tons. These figures are second to none in the world and Europe, respectively.

RO desalination is characterized by freshening seawater by means of filters. The market is more than three times bigger than its evaporation-based desalination counterpart, with its annual average growth rate estimated at approximately 17% until 2016.

At this time, GS Engineering & Construction acquired not only the company but also its place of business in Algeria, thus establishing a bridgehead into the North African market. Over 70% of the order backlogs of Inima are based in regions other than Spain, including Latin America, Europe and North America. The company recently set foot in the Brazilian, Mexican, Algerian and US markets to further accelerate its global business. Building on the takeover, GS E&C aims to expand its client base from the Middle East and Asia to the Ameri-

cas, Europe and Africa while helping Inima make inroads into the Asian water treatment market which shows huge growth potential.

The Mostaganem Plant, which is the second-largest seawater desalination facilities in the world, is in operation in Mostaganem, a port city in the northwestern region of Algeria. It produces 200,000m<sup>3</sup> of drinking water on a daily basis by drawing seawater from the Mediterranean Sea. The plant, built back in 2010 by none other than Inima, also adopted the RO method. "By taking over the Spanish enterprise, we've gained a foothold to become a global water treatment company," said GS E&C president Huh Myung-su, adding, "We'll grow Inima's annual sales to over one trillion won by 2020."

Three years ago, the Korean builder won two power generation projects in Oman worth a total of US\$1.3 billion, as well as clinched a deal for the construction of a wastewater treatment plant, launched by the Bahrain Petroleum Company (BAPCO), at a cost of US\$70 million. The project in Bahrain is to establish a plant to treat the 24,000m<sup>3</sup> of sewage produced daily by the BAPCO's oil-refining facility located roughly 20km away from Manama, the capital city. GS E&C is planning to knock on the door of the global wastewater treatment industry by wrapping up the project successfully.


In particular, the company is applying the advanced technology of membrane bioreactor (MBR) in an attempt to boost sewage treatment efficiency. These works are on a turn-key basis and are expected to continue for 27 months, starting with groundbreaking in Novem-



Mostaganem Plant, the second-largest seawater desalination facilities in the world

ber 2010. At present, 80% of the work has been completed, with overall completion scheduled for the first half of this year.

"This is the first time that we have penetrated the Middle East in the environmental plant engineering and water treatment industry, and we'll strive until completion so that the synergy effect of the acquisition of Inima can be maximized," the president continued.

Down the road, the company will redouble its efforts in the three sectors of plant, power generation and environment engineering, project development and marine plant construction as part of the framework of its Vision 2020. The purpose is to better enhance the competitiveness of its existing business while seeking new growth engines for future prosperity. In this vein, it is planning to take its LNG liquefaction, nuclear, combined cycle and coal-based power generation and seawater desalination technologies to a world-class level so that it can establish a market leadership in these fields, like it did in the oil refining and petrochemical industries. 

## SYNOPEX

# Striving to Be a Global Leader in Advanced Membrane System



Son Gyung-ik, CEO of SYNOPEX

**S**YNOPEX Inc. is aiming to pursue green growth as an eco-friendly company that focuses on the water and IT industries.

The company has a commitment to provide advanced membrane systems, high performance filters, environmentally friendly packing materials and mobile components such as touch screens, Key-PBA, and tempered glass for prominent domestic and overseas enterprises through innovative technological integration.

In regards to water the company has 22 years experience in manufacturing water treatment filters, in particular micro depth cartridge filters, and was the first Korean company to use melt-blown technology.

In July 2009, the company decided to operate as a total water solution provider, adopting membrane technology right after the takeover of two companies; a UF membrane manufacturing company and a water treatment engineering company. On January 16, 2013, the company established the Advanced Membrane Analysis & Process Research Center for

new advanced membrane R&D, making improvements based on membrane analysis technologies obtained through academic-industrial cooperation with Korea University. The role of this center is selecting optimum membranes and providing consulting for water treatment plants (WTP), wastewater treatment plants (WWTP), water reuse plants (WRP) and seawater reverse osmosis plants (SWRO) with the aim of being a certified agency for Korean and International membranes in the future.

The company has a vision of achieving US\$300 million in annual revenue by the end of 2015 by expanding its material, engineering and B2G businesses. The company's total turnover last year was approximately US\$ 510, with the water business standing at US\$45 million.


Currently, the company is focusing on mobile and stationary water purification system (WPS). It is providing Mongolian National Water Committee (NWC) with a mobile WPS (Water-911) with a capacity of 20 cubic meters per day as an initial shipment of the cooperative project between the NWC and the SYNOPEX. The project is for promoting the long-term development for green growth and eco-city in Mongolia. The project will supply safe water in Mongolia for the upcoming decades in collaboration with UNESCAP.

With ODA funds from Korea's Ministry of Environment, a demonstration project to install stationary WPS with a capacity of 150 cubic meters per day in Nigeria began last year and will be completed in May 2013. As people there face a water scarcity, both mobile and stationary WPSs have been used largely

to secure clean and safe drinking water in rural areas, including MENA and SEA.

Furthermore, the company has also concentrated on high performance filters in order to develop its international business, as well as gathering information on various filters, water treatment systems and wastewater treatment systems. For more information visit [www.synopex.com](http://www.synopex.com)

For the Korean water and wastewater market, the company has concentrated on water reuse, demineralized water for power industry, a fluoride removal treatment system and high performance filters. SYNOPEX has also been involved in the Daegu-Gyeongbuk Blue Gold Cluster Developing Project, a national project related to water reuse. The project aims to customize water reuse systems for industrial wastewater in the Daegu-Gyeongbuk region.

From this year, SYNOPEX will be focusing efforts on growth, ensuring a bright future through creativity. 



## Coway

# Differentiating Membrane-related Technologies and References

Coway has chosen the water treatment business as its future growth engine.

The water treatment department of Coway began in 2000 through technical partnership with Zenon Canada (now GE), which has numerous reference sites for wastewater treatment at approximately 100 places in Latin America and East Europe.

From 2001, it began sales and installed ultrapure water pre-treatment systems and wastewater treatment systems at the semiconductor and LCD manufacturing facilities of well-known companies such as Samsung Electronics. The company has also reference sites in industrial water treatment or water re-use, the technologies of which are well acknowledged in Korean industrial water treatment engineering industry using membranes.

The water treatment department of Coway, which has the biggest accumulated reference sites and latest technology in membranes, took over Green Entech, a company specializing in water treatment engineering, in February 2010 and expanded its business scope from membrane water treatment engineering to conventional (biochemical or chemi-cophysical treatment) water treatment engineering. In addition, to expand to power plant water treatment and water intake, industrial plant and pure water system businesses, the company took over water treatment engineering company Samyang in 2011. As a result, it is now able to expand to overseas markets using its global network.

The water treatment department of Coway provides total solutions for water related consulting, engineering,

construction and commission to O&M in different water treatment fields, such as water reuse, municipal water and sewage treatment, industrial water, and wastewater treatment.


The company has differentiated membrane related technology and reference sites including industrial water treatment facilities for LCDs and semiconductor manufacturers such as Samsung Electronics (accumulated capacity: 300,000 tons/day), "Busan Sooyoung Municipal sewage treatment plant rehabilitation" which is the biggest in Korea to use MBR technology (capacity: 100,000 tons/day).

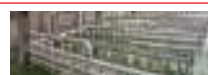
In particular, the company has outstanding reference sites related to water reuse. The accumulated capacity of the reference sites is 140,000 tons/day, the highest in the market. The company also won a contract for the Incheon Gajwa sewage treatment plant sewage reuse project in 2011, converting 65,500 tons/day of sewage into industrial water for a steel manufacturing site. In 2012, it

won a contract for Pohang sewage reuse project with a capacity of 100,000 tons/day, the biggest as a municipal project.

As shown above, Coway has obtained n and has been running successfully large-scale projects. The water reuse system of Coway, a representative engineer system combining UF and RO membrane, can be customized according to the type of water (ex. sewage, wastewater, silicon wastewater, and etc.) and treated as industrial water or process water.

Coway is the only domestic company in water reuse that can develop, engineer, construct, operate, and manage the whole process on its own. This can be clearly seen in the Pocheon Municipal Water Reuse BTO (Build-Transfer-Operate) project, in which it is the main operator. The project is to be completed this year.

The water treatment department of Coway, with its basis of differentiated technology, has been doing actively the total water treatment engineering business with a goal to be the best total water system provider in Korea in 10 years. 



## Water Reuse

- Sewage, wastewater reuse
- UF+RO



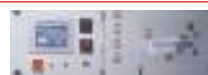
## Municipal water and sewage treatment

- Sewage treatment (MBR)
- Tertiary water treatment (using membrane)



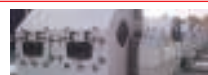
## Industrial water and wastewater treatment

- Industrial water treatment business
- Industrial facility wastewater treatment
- Leachate treatment/Livestock wastewater treatment



## Package system

- Package system for drinking water supply in disaster areas
- Package system for water supply in remote areas



## Water Intake

- Intake water for power, desalination, and steel plants



## Biogas Energy Recovery

- Produces biogas energy using organic waste



## Automobile Market

# Why Are Korean Cars Losing Their Popularity in Korea?

Imported car sales in Korea rose 14.8% in February 2013 on a year-on-year basis, while Korean cars sold 12% less over the same period. Korean cars appear to be pulling back while imported cars are moving forward.

The Korea Automobile Importers & Distributors Association (KAIDA) announced on March 7 that the number of newly-registered imported cars in February totaled 10,556 units, down 14.5% from a month earlier, but up 14.8% compared to the same month a year earlier. A source from the Korea Automobile Importers and Distributors Association said, "We had a double-digit share in Korea for the first time in 2012. We estimate foreign cars earned a 12% market share over the January and February period."

A Korean automobile analyst claimed that the general economic slowdown led to the plunge in sales for January and February. To make matters worse, the benefit of providing individual consumption tax cuts ended last year, which

had a negative effect on their business, added the source. However, this may not be the answer to the "Native cars backward and foreign cars forward" problem because the tax cut issue applies to both Korean and foreign cars.

Foreign cars are more expensive than Korean cars. Drivers of foreign cars have to wait twice as long for maintenance and repair services, and they have to pay roughly five times as much for the replacement of car parts. Yet, despite this, foreign car sales are increasing because they are still attractive and the fact that Korean consumers are tired of Korean cars.

There are five Korean car makers; Hyundai, Kia, GM Korea, Ssangyong and Renault Samsung. However, apart from Hyundai and Kia, the others have earned low confidence among consumers and only introduced a small number of new cars. A driver said, "I know Hyundai cars are good but I've driven them for too long. I feel tired of Hyundai cars. Yet, except for Hyundai and Kia, no Korean cars look good enough. So I'm driving a foreign car now."


An industry source said, "Currently, 25 foreign car makers are offering more than 400 different models in Korea. It is hard for Korean car makers to satisfy consumers when they offer only one tenth of that of foreign models." Furthermore, since the Korean government signed free trade agreements with the US and the EU, imported car prices have lowered and the number of low-priced imported cars increased. As a result, workers in their 30s are more willing to choose an imported car.

Foreign car dealers sold more than 10,000 cars each month for the past 12

months. They aim to sell a total of 143,000 cars this year, a 10% increase from 2012 (130,000 cars). "Korean car makers should protect their domestic market by offering differentiated services and new kinds of marketing strategies. They should not stick to their development-oriented strategies," said Kim Ki-chan, Professor of Business Administration at the Catholic University. In particular, to prevent weariness regarding the nation's two major players – Hyundai and Kia – from leading to the purchase of foreign cars, the other three – GM Korea, Ssangyong and Renault Samsung – should make strenuous efforts to provide what consumers want, said Kim.

Imported car sales in February outnumbered sales by GM Korea, the No. 3 domestic automaker, amid stagnant domestic sales, and thus posing a threat to domestic players. As was the case with domestic cars, imported cars also had a short period of operations due to the Lunar New Year Day holidays. Still, imported cars, buoyed by Fiat's new entry into the local market and Japanese car sales growth, have become a strong force in the market.

The cumulative number of imported cars up to February of this year stood at 22,901 units, up 22.9% from the same period last year.

By brand, BMW retained the lead, with 2,583 units registered in February, followed by other German carmakers – Volkswagen, Mercedes-Benz, and Audi, with 1,552, 1,404, and 1,308 units, respectively. Next was Toyota, at 495 units, Ford, 481, Honda, 396, and Fiat, which recently entered the domestic market, with 85 units. 



## Seoul Motor Show

# Scheduled to Open on March 28 with 42 New Cars Displayed

Seoul Motor Show 2013 will open its ninth show at Korea International Exhibition Center (KINTEX) in Goyang, Gyeonggi Province next month, inviting 331 companies from 13 countries around the world, the biggest scale ever. The show will showcase nine world premieres, 15 Asian premieres and 18 Korean premieres.

The Organizing Committee of Seoul Motor Show 2013 (headed by Kwon Young-soo) had a news conference at Lotte Hotel in downtown Seoul on February 27 to explain its preparation for the show and introduce the participating companies. Under the theme of "With Nature, For the People," Seoul Motor Show 2013 will begin with the press day on March 28 and continue until April 7. The exhibition area covers 102,431 m<sup>2</sup>, twice that of the previous one held in 2011.

The Organizing Committee expects about 1.2 million visitors, 15,000 foreign buyers and export counseling for US\$1.5 billion worth of products.

There are 228 domestic and 103 foreign companies participating in this international motor show. Especially, German companies, totally 35 including five car makers, account for the largest portion of the foreign participants. Among totally 331 participating companies are 29 car makers (9 Korean, 20 foreign), 290 parts suppliers and 4 two-wheeled vehicle makers.


The number of new cars, representing the show's international status, is down to 42 this year from 54 in the previous show.

Seoul Motor Show 2013 will show nine world premieres (meaning world's first cars) including Hyundai Motor's

luxury sports coupe concept car HND-9 and commercial vehicle Trago Axcient, Ssangyong Motor's concept car LIV1 and W Summit, Oullim Motors' New Spira GT 3.8, and Power Plaza's concept car Yebbujana 4.0.

Asian premieres include Kia Motors' five door K3, Renault Samsung's compact sports utility vehicle (SUV) Cap-

ture, Ssangyong Motor's concept car SIV1, BMW 3 series GT/M6/Gran Coupe/Z4 and S-Drive 35is, Lincoln all-new MKZ, Toyota Avalon, Volkswagen Golf A7, Infiniti concept car LE, and others.

The show will also introduce 15 kinds of future concept cars and 34 kinds of hybrid, electric, fuel cell cars. 





## Car Business in Europe

# Hyundai and Kia Increase Local Production Ratio

The Hyundai and Kia Group declared on March 5 (local time) at the 83rd Geneva International Motor Show that it would increase its local production ratio in Europe to 90% by next year. The idea is that it has no other option but local production to get over the so-called New Normal trend, which can be defined as the emergence of trade protectionism and restrictions amid the prevalence of low growth.

"We've invested two billion euros to establish production facilities in Europe and will make an additional investment of 475 million euros to expand the annual capacity of our plant in Turkey to 200,000 units," said Hyundai Motor Europe COO Allan Rushforth on that day, adding, "We'll boost our local supply capabilities by making use of the production bases." Mark Hall, marketing director at Hyundai Motor Europe, echoed by saying, "We've released 15 new models design and manufac-

*"We've invested two billion euros to establish production facilities in Europe and will make an additional investment of 475 million euros to expand the annual capacity of our plant in Turkey to 200,000 units," said Hyundai Motor Europe COO Allan Rushforth*


tured in Europe since 2008 to be well received by a great number of consumers and our efforts will continue down the road."

The Hyundai i30, for example, was developed by its R&D center located in Germany and has been manufactured in its Czech plant to become one of the final candidates for the Car of the Year Award in Europe. The compact SUV ix35, whose sales increased no less than 15% last year, is produced at the Czech plant, too. Kia's European models like the Ceed also have been designed in Frankfurt, Germany and manufactured in the Slovakian factory.

The automakers are planning to step

up their localized marketing efforts as well, particularly sports marketing. "Both Hyundai and Kia will continue with their support for the UEFA and Hyundai will join the World Rally Championships this year," said Hyundai Motor vice chairman Chung Eui-sun. To this end, Hyundai has come up with its rally car for the WRC based on the i20 and built new motor sports facilities in Germany. The effect of marketing campaigns using soccer is expected to be maximized with the World Cup scheduled for next year in Brazil.

The companies are focusing their PR resources to publicize that they are making great contribution to the European economy, too. "Hyundai's annual purchase in Europe amounts to 4.8 billion euros and 72% of it is through insourcing in the region," the COO emphasized, "The company pays 0.9 billion euros of taxes each year and more than 47,000 locals are working for our company."

The group is expecting that its business in Europe will be taken into another level through its efforts for localization. Hyundai Motor's senior managing director Jo Won-hong, who is in charge of marketing, remarked at the venue, "European automakers are having hard time nowadays and it means an opportunity for us. We'll be striving to win over more and more European consumers this year." 





## World's First Mass-Production FCEV

# Hyundai Motor Commences Production of Tucson ix

For the first time in the world, Hyundai Motor will launch the mass-production of a fuel cell electric vehicle (FCEV).

The Korean auto giant held a ceremony to celebrate the world's first mass-production of FCEV at its Ulsan plant on February 26, commencing production of the Tucson ix, a hydrogen fuel-cell model based on in-house technologies.

The car manufacturer plans to secure a leading position in the market by selling 1,000 units around the world, including Europe. Its global competitors such as Mercedes Benz, GM, and Toyota are due to launch large-scale production after 2015, thus giving the Korean firm the opportunity to gain a lead in the market. As mass-production has become a reality thanks to its technological prowess and production expertise, Hyundai is expected to move a step closer to ushering in a new era of global environment-friendly vehicles.

In order to ensure the successful mass production of FCEV, the company established a separate production plant designed exclusively for the production of such vehicles within its Ulsan plant. The carmaker will ensure the quality of its products by operating hydrogen gas filling and leak test facilities for all vehicles.

The company will commence mass-production from the end of this month, with the aim of producing a total of 1,000 units to customers both at home and abroad. This includes supplying 15 cars to Copenhagen, Denmark in April, and two to Skåne, Sweden.

The Tucson ix is equipped with a 100kW fuel cell system and 2-tank hydrogen storage system (700 atmo-



On February 26, Hyundai Motor vice chairman Kim Eok-jo (far-right) and Ulsan City mayor Park Maeng-woo (second right) celebrated the mass-production of the Tucson ix at a plant designed exclusively for the production of fuel-cell electric vehicles.


spheric pressure), both of which were designed entirely in-house. The model can run for 593 km on a single charge of the battery. This is the equivalent to 27.8 km/liter in gasoline mileage (based on European gas mileage determined by the New European Driving Cycle or NEDC). The model is also one of the world's most efficient vehicles, and can even start in temperatures as low as -20 degrees.

Hyundai unveiled the SantaFe, its first FCEV, in November 2000, two years after launching development efforts in 1998. The Tucson model was created in 2006 with the Tucson ix FCEV, a third-generation model, grabbing attention with its first appearance at the Geneva Motor Show in 2010.

The new model features a radiator grill bumper, fog lamps, supervision cluster, and 7-inch navigation screen, as well as an array of features newly designed for the FCEV. Furthermore, by applying a system similar in size to the existing gasoline-powered engine the

new model has improved productivity and maintenance convenience.

Earlier this year, the Tucson ix won the "2013 Future Auto Award," at a motor show held in Brussels, Belgium, beating worthy rivals such as Mercedes Benz, Volvo, and Bosch. In Europe, the new model's technological ingenuity and commercial value are increasingly being recognized, as evidenced by the company being chosen as a test-drive operator and entering into a contract to supply government vehicles.

In a speech at the ceremony, Kim Eok-jo, vice president of Hyundai Motor, said, "I expect that the world's first-ever mass-production of fuel cell electric vehicles will help us bring in a new era of eco-friendly cars faster than originally forecasted," adding, "Going forward, based on strong development competitiveness, we will continuously make efforts to transform ourselves into a leader in technology and production in the field of eco-friendly cars, a future growth engine." 

## GM Korea

# Planning to Invest Eight Trillion Won for Five Upcoming Years

GM Korea president Sergio Rocha presented his company's future growth strategy on February 22 by the name of GMK 20XX, focusing on the enhancement of product competitiveness and business sustainability. According to it, the company is going to concentrate on the goals of more aggressive domestic market penetration, global design and R&D, production capacity increase and the improvement of CKD, or complete knock down, capabilities in an attempt to achieve a double-digit market share in Korea this year and further raise it to 20% in the long term. It plans to come up with six new models for the upcoming five years and manufacture next-generation power trains for exports.

GM Korea supplies more Cadillac as well as Chevrolet brand products in Korea to increase its presence here while holding hands with more dealer networks. "We're going to release an increasing number of Cadillac vehicles in Korea down the road," said Tim Lee, president of GM International Operations, adding, "The Cadillac brand will contribute greatly to GM Korea's efforts to increase its local market share." At the same time, the company steps up marketing activities for mass market products such as the Chevrolet Trax. "I guess nine out of 10 customers who experienced all of the Hyundai Tucson, Kia Sportage and Trax will say our car is better," he went on, "We'll provide local consumers with more options to choose from by launching a variety of products."

In the meantime, GM Korea's role as the leading developer of GM's sub-compact and mini cars is enhanced for global design and R&D capability improvement. In this vein, GM Korea is



GM International Operations president Tim Lee (right) and GM Korea president Sergio Rocha are answering to reporters' questions at the press conference held at the Bupyeong headquarters on February 22.

planning on expanding its design center in the head office located in Bupyeong, Incheon City so it can become the third-largest design lab of GM following those in the United States and Brazil.


It makes more efforts for production capacity increase, too. GM's next-generation global sub-compact, mini and midsize cars and pure electric vehicles, six models in total, are scheduled to be manufactured by GM Korea along with the power trains. The Korean subsidiary is going to give its best in terms of quality and cost competitiveness enhancement to outcompete the 167 manufacturing plants run by GM International.

Lastly, GM Korea is striving to further its CKD capabilities. The company exported more than 1.27 million units of vehicles on a CKD basis last year and shores up its role as a CKD export base for GM's mini and compact cars. The idea is to become the benchmark model of all regional subsidiaries of GM.

"We'll boost our global competitiveness by building on our accomplishments during the past 10 years and bringing GMK 20XX into success,"

said the GM Korea president. Tim Lee echoed by saying, "Though there are some people worried about the possibility of our leaving the Korean market but I'd like to emphasize that it's not true at all. We've recently made a decision to invest eight trillion won in the Korean market, which means our business in Korea will continue for a long while."

With regard to the early redemption of preferred stocks as of late, president Sergio Rocha remarked, "We redeemed half of the outstanding preferred shares late last year and are going to repay the other half before the end of the first half of this year. The purpose is nothing more than to strengthen our financial structure through debt repayment."

He continued, "Entry-level cars constitute a highly profitable segment in Korea and we'll never miss out on it. We're planning to keep producing the Cruz with improved specifications in the country and its follow-up models will be manufactured in the Gunsan plant, too," By saying, so, he refuted the rumor that the Gunsan plant will cease the production of the Cruz sooner or later. 

## Iron Powder

# Hyundai Motor To Produce by Itself

Hyundai Motor has begun the “Iron Powder” business aiming at mass production in 2017. Iron powder is a core material for major components of internal combustion engines and transmissions as well as some electronic parts. Korea has depended entirely on imports to meet the demand for this material so far.

Hyundai Motor held a general shareholders’ meeting at its headquarters in Yangjae-dong, Seoul on March 15, and passed the motion to add the “Other Iron and Steel Business” to the list of the objective businesses in the company’s Articles of Incorporation.

More specifically, the “Other Iron

and Steel Business” means the development and mass-production of iron powder. “Our iron powder business is in the R&D stage at Hyundai and Kia Motors’ Namyang Institute,” Kim Choong-ho, CEO of Hyundai Motor, said at the general shareholders’ meeting.

Hyundai Motor has decided to be directly involved in developing iron powder, although there is a general steel manufacturer – Hyundai Steel – among the Hyundai Group family members, because the major purposes of iron powder are related to the automobile industry.

Iron powder is used to manufacture major components of automobile engines, such as cam sprocket, con-




Kim Choong-ho, CEO of Hyundai Motor

rod, oil pump rotor and crank sprocket; transmission control gear, shift gear and planet gear carriers; and some parts of shock absorbers and power steering.

All these components and parts require high-level precision and intensity. So they should be cast in the sintering process by which iron powder is held and pressured in a mold, and then heated to a temperature below the melting point.

Unfortunately, the Korean car makers have had no choice but to 100% depend on imported iron powder made by Japan-based JFE Steel and others, because the domestic steel makers have not manufactured it until now. The domestic demand for iron powder amounted to a total of 72,000 tons as of 2011, including Hyundai and Kia’s 40,000 tons. POSCO proclaimed the commencement of the iron powder business as late as in 2012. It is now building a production line with annual capacity for 30,000 tons of iron powder at its Gwangyang mill.

POSCO, as a global leading steel maker, thought the domestic iron powder market was too small to create enough efficiency until a few years ago. But, some people started to suggest that the company should supply all products for the automobile industry as a package as well as steel sheet products and wire rods. Then, the company decided to do the iron powder business last year. 

## Hyundai Mobis

## Starting Mass-production of FCEV Parts

Hyundai Mobis has completed development of core parts for fuel cell electric vehicles (FCEV) and started the world’s first mass-production.

Hyundai Mobis said on March 6 that it has started producing FCEV drive motors, power electronics, lithium battery packages and fuel cell integrated modules. These core parts are mounted on Hyundai Motor’s Tucson iX, a kind of hydrogen FCEV which has been in full production since the end of last month. A source from Hyundai Mobis explained, “The world’s leading part suppliers have not yet succeeded in mass-production of core FCEV parts. We’ve made it in five years after we started developing technologies for environment-friendly vehicles such as hybrid cars and electric cars.”

These parts play a pivotal role in hydrogen FCEV. To drive a hydrogen FCEV, you have to supply hydrogen fuel. Then, the fuel cell integrated module generates electricity, drives the motor, supplies power to various electronics and stores it in batteries through electronic power components.

In detail, the company’s 100-kw high-capacity and high-speed drive motor generates a maximum of 134 horsepower and drives the car at a maximum of 160km/h. This is a great improvement compared to the 41-horsepower motors mounted on the existing hybrid cars, and not quite different from the gasoline engines for semi-medium size cars. The company has also gained price competitiveness by not using expensive rare earth permanent magnets.



## Daewoo International in Myanmar

# Attracting Investment in Gas Field before Starting Commercial Production

Daewoo International (CEO Lee Dong-hee) is distinguishing itself in the field of overseas natural and mineral resources development, especially in gas fields in Myanmar.

The company produces gas in A-1 and A-3, two offshore gas fields located in the southwestern Asian country, and succeeded in attracting equity investment in the AD-7 field from Woodside, an energy company headquartered in Australia, on March 15. The contract, which is a follow-up of the MOU signed between the two in October last year, is scheduled to take effect following approval from the Myanmar government.

Daewoo International and Woodside will own 60% and 40% of the shares, respectively, with the former retaining the position of project manager. Both companies will proceed with physical prospecting in AD-7 until 2014 before determining whether or not to start drilling work. "The investment is expected to allow us to significantly reduce future

risks and continue our exploration activities on a larger scale," said Daewoo International.

In the AD-7 gas field, Daewoo International concluded a product sharing contract (PSC) with the government of Myanmar back in February 2007 and carried out seismic prospecting and exploration well drilling until 2008. However, Bangladesh claimed sovereignty over the region, thus delaying any further exploration activities. The governments of the two countries brought the case to the International Tribunal for the Law of the Sea, which recently ruled that the gas field belongs to the territorial waters of Myanmar.

Daewoo International discovered the Shwe (meaning gold in Myanmar) field in A-1 in 2004, Shwe Phyu also in A-1 the following year and Mya in A-3 in 2006. The gas fields in Myanmar have possible reserves of 4.5 trillion cubic feet, which is equal to 800 million tons of oil equivalent (TOE). The amount is equivalent to three years' natural gas consumption of Korea.


In the meantime, the trading company held a ceremony in November last year at a shipyard of Hyundai Heavy Industries in Ulsan City to mark the departure of the Topside, the upper part of the gas production platform for the Shwe gas field. The ceremony was attended by more than 200 figures, including Daewoo International CEO and vice president Lee Dong-hee, POSCO chairman Chung Joon-yeon, the Deputy Minister of Energy of Myanmar, top management of Hyundai Heavy Industries and the Myanmar Oil & Gas Enterprise (MOGE).

Constructed over a period of 20

months from April 2011, the Topside is equipped with gas processing equipment and drilling and residence facilities. It reached its destination via Singapore and the Bay of Bengal before being mounted on the Jacket, the lower portion of the production platform. It is the second-largest of its kind, weighing 26,000 tons in weight, 98m in width, 56m in length and 89m in height.

The company installed the Jacket in March 2012 and placed the subsea production systems and gas pipelines successfully off the coast of Myanmar. At present, it is about to wrap up construction of the onshore gas terminal. The Topside was mounted in December 2012 and is slated to produce gas from May after test operations.

Daewoo International is planning to sell 100% of the natural gas it produces there for 25 to 30 years to China National United Oil Corporation (CNUOC), a subsidiary of the China National Petroleum Corporation (CNPC), to earn profits of approximately 300 billion to 400 billion won a year.

Currently, the trading company is running 96 global business networks around the world, while moving ahead with eight energy resources and seven mineral resources development projects. Furthermore, it kicked off the mass production of bituminous coal in Narabari, Australia and nickel in Ambatovy, Madagascar last year. The reserves are estimated at 4.32 million and 1.7 million tons, respectively. It is also planning to produce uranium ore in Canada from 2017. In addition, it is engaged in oil palm plantation development in Indonesia and forest resource development in Russia. 



## Korea South-East Power

# Leading the Way in “Creative Economy” and Win-Win Growth

**K**orea South-East Power or KOSEP (president Jang Do-soo) aims to foster 30 global champions by 2020.

The state-run power company declared its KOSEP 2020 Win-win Growth Vision on March 7, which is characterized by the promotion of the 30 firms, the export arrangement of small business products worth at least US\$5 million and the purchase of their products worth 150 billion won or more.

The foremost goal of the new vision is to nurture small but promising companies and help them enhance their competitiveness in the global market. The idea is to keep pace with the Korean government's plan for small and mid-size enterprises (SMEs) to take a leading role in the national economy. At present, KOSEP is penetrating domestic and overseas markets in tandem with 30 or so local SMEs, while also moving ahead with joint photovoltaic and wind power generation projects in Bulgaria and the United States, respectively. In Korea, it is also engaged in similar undertakings in Ansan City, Gyeonggi Province (combined cycle power generation), and Yeosu City, South Jeolla Province (construction and operation of integrated energy facilities), etc.

At the same time, it plans to invest 38 billion won in the Power Energy Loan, a Public-Private Joint Fund, so that more Korean SMEs can strengthen their business independence and stability. It is planning to open a permanent exhibition center dedicated to the R&D results of



Photo session for win-win growth with SME presidents

small businesses and establish an R&D demonstration center.

“The KOSEP Hybrid Business Association, which began voluntarily with just 10 SMEs as recently as four years ago, has made remarkable growth both in terms of quality and quantity, and now has 50 leading companies in difference sectors as members,” said the president, adding, “I’m glad to see that the association is now one of the most prestigious organizations for technical exchange in Korea’s power industry.”

He continued, “At this moment, we’re aiming at global markets in order to seize a valuable opportunity to turn the power industry into one of the future growth engines of Korea, and our partner firms have a critical role to play in this quest.” Up to now, the power generation company has recorded exports of approximately US\$330 million.

KOSEP is doing a variety of social contribution activities for those with less access to energy so as to facilitate the advent of a sustainable society through the effective use of energy resources and reduce the energy divide.


It is also focusing its efforts on

improving welfare on a local community level. Some examples include the Sunny Place, Sunny Plant and Sunny Garden Campaigns, all of which kicked off last year. The first aims to give financial aid to those living in shanty towns, while the second is to provide photovoltaic power generators to households suffering a lack of electricity.

The Sunny Garden Campaign’s goal is to help social welfare institutions raise their energy consumption efficiency.

In the meantime, it has run fish farms using thermal effluent and released approximately 1.7 million fish and 400,000 shellfish in an attempt to help diversify the local marine ecosystem. The company has also resold fly ashes generated during power generation and donated 6% of these earnings to local welfare institutions.

KOSEP’s endeavors are yielding visible results in the field of labor-management cooperation, with it being awarded the excellence award in the large corporation category at the 25th Labor-Management Cooperation Awards held in February by the Korea Employers Federation.

President Jang recently emphasized that he would continue to develop exemplary labor relations in order to provide an example to other state-run companies in Korea. Yeo In-chul, head of the labor union, echoed this, saying that he would go for more communicative and strategic labor-management relations beyond participation and cooperation. 

## Korea Western Power

# Supporting SMEs and Providing Education to Poor Children in Laos



Photo for agreement on establishing the juvenile center

**K**orea Western Power (KOWEPO) supports small and medium-size enterprises (SMEs) through its interactive communication system called “Open Platform for Co-prosperity” which began operations in November last year.

The Open Platform for Co-prosperity is operated through a web site that provides various support to SMEs. The site is comprised of several categories, such as information, sharing, cooperation, performance and individual business. However, it is not designed as a one-way information service tool. It is equipped with a well-structured interactive communication system that allows the easy sharing of R&D listings, the performance of support projects, and other important information.

In terms of cooperation, it is possible for SMEs to make business proposals to each other, to transfer technologies through the technology market, and realize their business ideas through the exchange of ideas.

KOWEPO registered a total of 165 tasks for performance sharing in 2012, the largest ever in the country. When such tasks generate profit, part of this

profit is donated as social contributions, with the same amount donated back to the SME in order to support the development of technologies.

KOWEPO also launched a win-win energy saving business called “Green Credits,” a first among the nation’s public organizations. This business is to provide big energy consumption companies with support for energy-saving facilities.


KOWEPO is also active in developing countries. In January this year, the company signed a sponsorship agreement with civil group “Global Vision” to construct a Children and Juveniles Center that will provide protection and education for poor children in Laos. Statistics shows that 72.4% of Laotian children enter elementary school but only 41% finish. Furthermore, the nation’s illiteracy rate stands at 43%. Laotian children are exposed to a very poor educational environment, but it is hard to expand educational infrastructure due to economic problems. In particular, the city of Vientiane, where the KOWEPO-sponsored children and juvenile center will be constructed, is in desperate need for help because it does not have any kind of cultural facility, such as a public library.

Construction work for the center began in early February and will be completed by the end of June. KOWEPO is expected to donate approximately 60 million won for the construction of an eight-classroom building which will house about 100 children, as well as the purchase of desks, textbooks and other educational material. In addition, KOWEPO will provide educational programs for IT technology, English, music and art, as well as regular food supplies, includ-

ing bread and milk. The company will pay constant attention to poor children and juveniles in urban areas so as to help them grow into competent adults.

The Children and Juveniles Center project was requested by the Laotian Ministry of Education. This is particularly meaningful as it is the first global social contribution project initiated by KOWEPO in cooperation with a civil relief organization. The project is expected to have a positive effect on the successful completion of the Xe-Namnoy hydroelectric power plant project, which is scheduled to kick off in July this year.

Along with its continuous expansion of overseas businesses, KOWEPO plans to step up its social contribution activities in Myanmar, Indonesia, India and other developing countries.

Meanwhile, KOWEPO actively hires high school graduates in accordance with the government’s policy. On January 30 this year, the then president, Lee Myung-bak, invited individuals and representatives from every field of life to the presidential guest house in the Blue House to praise their efforts for the “Advancement of Vocational Education in High School and Reinforcement of Juveniles’ Vocational Capabilities,” one of the government’s important policy tasks. KOWEPO was the only public organization to be invited and received the Presidential Award. The company was highly praised because it played a leading role in creating a recruitment culture for high school graduates, thus increasing job opportunities and improving its personnel management system. KOWEPO has also established ties with nine vocational high schools for the purpose of socially-equal recruitment. 



## A Massive-scale Solar Power Project

# OCI Raised Anchor for the US Solar Project



OCI Chairman Lee Soo-young (fifth from the left) is scooping the very first shovel of earth along with local officials at the groundbreaking ceremony of the solar power project in San Antonio, Texas on March 5.

OCI broke the ground for a massive-scale solar power project in the US.


OCI announced on March 6 that its US subsidiary OCI Solar Power had a groundbreaking ceremony for a 41-megawatt solar power plant in the Blue Wing Road area of South San Antonio, Texas on March 5 (local time). This plant is the first phase of the 400-

megawatt solar energy supply agreement signed between OCI and the city's power utility company CPS Energy in July last year. OCI plans to complete the construction of this plant by the end of this year and supply the clean energy to about 7,000 households in the area.

For this project, OCI has made a consortium partnership with a Spain-based

solar tracking system specialist ERCAM and a Germany-based inverter manufacturer KACO. It has completed the project financing from Korea Development Bank (KDB) and Korea Finance Corporation (KoFC).

Under the agreement with CPS Energy for a total of 400-megawatt solar energy development, OCI will carry out five-phased construction works over the four-year period. The entire solar farm is as big as 1,600 football stadiums (about 16.5 million square meters), and it will be built out by 2016. After completed, the power generation facilities will supply solar energy to about 70,000 families in San Antonio and OCI expects this project will generate more than US\$ 2.5 billion in sales for 25 years.

"Solar power is our sensible and safe choice for the Earth and our next generations. Beginning with the largest US solar power plant, we will actively explore business opportunities in Canada and Latin America as well as in the US," said Lee Soo-young, CEO of OCI. 

## KOGAS

### Making Equity Investment of 963.6 billion Won into the Australian Affiliate

Korea Gas Corporation (KOGAS) announced on March 12 that it has acquired about 855.86 million shares of its Australian affiliate KOGAS Australia's stock at a total of 963.6 billion won to participate in the Gladstone LNG (GLNG) project.

KOGAS explained, "The GLNG project includes developing the coal seam natural gas field located in the inland area of Queensland, eastern part of Australia, and constructing a gas liquefaction plant on Curtis Island near the Glad-

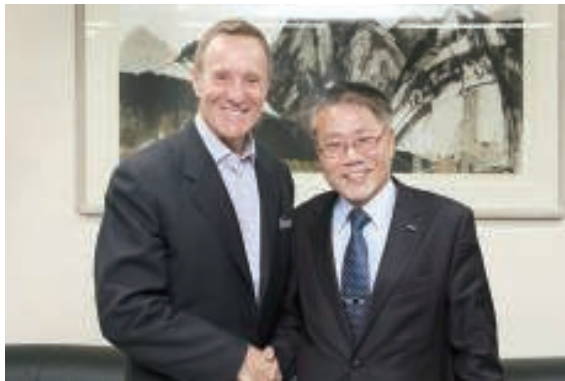
stone Port to export LNG."

The joint venture arrangement for this project is Santos 30%, PETRONAS 27.5%, Total 27.5%, and KOGAS 15%.



## Yamal LNG Project

# K-sure and Novatek Discussed Financial Support



Russia knocked on the door of Korea's state-run policy financial institution to move ahead with the Yamal LNG Project, a large-scale energy development project. It is expected to take US\$25 billion of investment during the course and Korean companies are to take part in the sub-projects worth US\$5 billion combined.

The Korea Trade Insurance Corporation, also known by the name of K-sure, announced on February 27 that it discussed Korean corporations' participation in and financial support for the project with Novatek, the largest private gas company in Russia. The goal of the project is to build an LNG plant in the Yamal Peninsula, West Siberia for an annual production capacity of 16.5 million tons. Russia is intending to develop gas fields in the region and export the result by means of the LNG plant to be built in the coastal region.

On that day, Novatek asked the K-sure to provide financial assistance to those Korean companies scheduled to join the undertaking. Once the project takes off, they should participate in the tender by arranging means for financing. It is policy lending support for that phase that

Novatek made the request for.

"These days, leading project managers around the world are making strong requests for financing measures to bidding participants, take advantage of the fierce competition in the global EPC industry," said the corporation, adding, "The Yamal LNG Project is no exception either, and our policy finance support is indispensable for Korean builders to join the project." The K-sure is planning to come up with necessary measures after thorough surveys and examinations.

Novatek's CFO Mark Gyetvay, in the

meantime, said during his visit to the company, "I hope that the K-sure's trade insurance assistance will lead to closer economic cooperation between Russia and Korea beyond the success of the Yamal Project." Lee Kyu-chul, director of the Investment & Finance Division of the K-sure, echoed by saying, "We'll do what we can do so that Korean companies can successfully find their way into the mega-scale project and I hope that Korean shipbuilders will be able to get opportunities in the LNG carrier project as well, through which orders for 16 vessels are expected to be placed." 

## Energy R&amp;D

## The Government Invests Over One Trillion Won This Year

The Ministry of Knowledge Economy invests one trillion won in research and development in the energy sector this year.

The ministry announced on March 17 that it allocated budgets of 1,003.6 billion won to this end. The total is divided into 679.8 billion won for technological development, 40.3 billion won for manpower training, 20.4 billion won for international cooperation, 44.2 billion won for technological standardization and 218.9 billion won for the support of government-funded research institutes. Through technological development projects, inter-industry technologies are developed associated with the development of new and renewable energy sources and natural resources, operation efficiency and safety of power stations, etc.

At the same time, the ministry is planning to work on world-leading commercial-scale technologies in the photovoltaic and wind power generation sectors and key source technologies regarding fuel cell development, biotechnology and waste management while going for the stabilization of power grids, inventing new smart grid business models, raising the reliability of nuclear power generation facilities, exporting domestically developed nuclear power stations and trying to reduce radioactive wastes.

In this vein, the ministry is going to give public notice of 69 energy projects and 10 human resources training projects before April 17 on the official website of the Korea Institute of Energy Technology Evaluation and Planning and hold information sessions in Seoul, Busan, Gwangju, Daejeon, etc.

## Large-capacity Coal-fired Power Plant in Vietnam KEPCO Wins a Contract for the Construction



Electric Power Corporation (KEPCO) has won a project to build and operate a large-capacity coal-fired power plant for the first time in Vietnam. The company announced on March 21 that it had been selected as a final successful bidder for the project to build, operate, and transfer (BOT) Nghi Son-2 Coal-Fired Power Plant awarded by the Vietnam Ministry of Industry and Trade (MoIT) through international bidding.

It is an international competitive bidding for the first large-capacity independent power producer (IPP) program using bituminous coal imports from Vietnam. KEPCO won the contract, beating out global power plant companies in France and Japan. The company's winning the contract expanded its stake in overseas power plants to 5,683 megawatt, equivalent to the capacity controlled by single domestic power company.

Total project amount is US\$2.3 billion. The project will be funded jointly by the Export-Import Bank of Korea (Korea Eximbank) and Japan Bank of International Cooperation (JBIC) in the form of project financing, and KEPCO and the Japanese Marubeni Corporation will split the stakes 50:50.

Doosan Heavy Industries will be involved with Engineering, Procurement, and Construction (EPC), and KEPCO will be charged with the operation and maintenance (O&M) of the

power plant as well as the supply of fuel. The contract signing and funding will be completed by August next year, and the power plant will go into commercial operation in August, 2018.

KEPCO said given that the Electricity of Vietnam guarantees the Power Purchase Agreement (PPA) for 25 years, the deal will be a stable source of sales worth US\$15 billion (some 18 trillion

won). On top of that, as the deal enables several Korean companies to enter the overseas power markets, it is expected to generate economic effects worth US\$1.2 billion (about 1.5 trillion won) domestically and create 3,000 jobs.

One KEPCO official said, "The project will serve as a model IPP project in Vietnam's power market in the future," adding, "It is meaningful in that it enables us to expand our presence beyond the Philippines, which is our existing target market, and into the thermal power markets in Southeast Asia.


## KOGAS Project in Mozambique

### Korean Government Develops the Project into New Model for Resources Cooperation

The Ministry of Knowledge Economy, which is scheduled to have the government's trade functions transferred in the Park Geun-hye government, works on new trade and natural resources development models through cooperation with Mozambique.

The ministry announced on March 14 that it is planning to establish gas supply infrastructure in the African country, which is home to the world's largest gas fields whose combined reserves amount to no less than 1.5 billion tons, so that Korean companies can find their way into the region with greater ease. On the same day, the ministry held a groundbreaking ceremony in Maputo, the capital city, for its project to build gas pipeline networks.

The project was proposed first by the government of Mozambique to the Korea Gas Corporation (KOGAS) in an attempt to better protect its gas industry. The state-run gas company is going to set up a joint-stock venture with its counterpart in Mozambique and then build gas supply networks and management offices by the end of the first half of 2014. The KOGAS is entitled to run the facilities for 20 years from the date of completion.

The Ministry of Knowledge Economy is planning to turn the project into a benchmark model for future trade and industrial cooperation. To this end, it sends a large-scale delegation to the country within the first half of this year for the first Korea-Mozambique Industry and Natural Resources Cooperation Committee and opens a new Korea Trade-Investment Promotion Agency (KOTRA) trade center there. 





## Hanwha Group's CSR Activities

# Never Knowing Boundaries



The Hanwha Group has never been negligent in its corporate social responsibilities since its inception, adhering to the philosophy of serving the nation by means of its business.

Back in 2002, the group set up a new division dedicated to social contribution in commemoration of its 50th anniversary. Five years later, it founded its own volunteer service corps for more systematic, large-scale social contribution activities. The foremost principle in Hanwha's CSR efforts is to pursue common prosperity with all members of society. This noble cause has taken different shape in a variety of fields, such as volunteer work, social welfare, culture and arts, education and sports.

Almost all of the group's employees are engaged in CSR activities in some way. For example, they make voluntary donations as part of a matching grant system in which the company adds 150% of the amount they donate, as well as paid volunteer work whenever they want. Officers in charge of CSR reside at more than 70 places of business around the nation, with the employees' rate of participation in volunteer work and social contribution funds totaling 90% and 95%, respectively.

Hanwha has also provided cultural

and art education to children from low-income families since 2009, which resulted in it winning the grand prize at the 2011 Korea Mecenat Conference. Since last year, it has run a new program named "Increasing Environmental Awareness through Cultural and Art Education," which is characterized by combining the concept of the environment with existing education regarding culture and arts.

Also underway for win-win growth with local communities are programs that support social enterprises in the environmental sector, as well as its Happy Sunshine Campaign. In regards to the former, Hanwha granted operating and R&D subsidies to 18 selected firms in 2012, as well as held information and IR sessions, and opening the KAIST Business School, a short-term MBA curriculum for those working for social enterprises. In regards to the school, the group made use of solar power, one of its future growth engines, to build photovoltaic power generation equipment with a capacity of 3kWh to 18kWh at 20 welfare facilities located nationwide. The number increased to 36 in 2012.


Hanwha is also deeply interested in the promotion of public education and the cultivation of creative human

resources. It established the Bugil Education Foundation in 1975 and operates the Bugil High School and the Bugil Girls' High School. Furthermore, it has played host to the Hanwha Science Challenge since 2011, the largest science research competition in Korea.

The Wing Sharers Leadership Conference, which kicked off last year, is seen as a benchmark model of global talent donation. Korean college students at Harvard have joined the conference to provide some mentoring to less-privileged high school students from Korea, helping them to follow their dreams.

The corporation has never been slow to share what it has with people the world. To fulfill its role as a responsible global corporate citizen, it has set up occupational training centers, school buildings, and portable water systems etc., since 2008 in poor countries in Africa, such as Tanzania, Kenya and Uganda. In 2011, it launched a desert afforestation project in the Ningxia Hui Autonomous Region in China to cope with desertification and Asian dust by building a photovoltaic power plant with an hourly output of 80kW. This is the first case in the world in which solar energy is being used to tackle desertification.

In Japan, it is working hard to help people recover from the Sendai Earthquake, supplying relief goods and construction materials along with solar power generation equipment to the northeastern region, where power networks were destroyed.

The most widely known cultural festival sponsored and hosted by Hanwha is the annual Seoul Fireworks Festival on the Han River. The autumn festival has solidified its position as a cultural event representing Korea, with invitations to those of less-privileged classes of society adding to its significance. 

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## Competition between Samsung and Apple

# Becoming Deeper in Sales and Innovation

Samsung Electronics lost its top spot in the global smartphone market to Apple in the fourth quarter last year. According to market research firm Strategy Analytics (SA) on March 11, Samsung Electronics had a 28.7% market share in terms of revenue from sales of smartphones in the fourth quarter of 2012, trailing Apple's (42.7%) by 14.0% points.

Samsung Electronics had ranked first in terms of sales revenue and volume in the third quarter last year.

Samsung fell from the top place in the fourth quarter due to Apple's expanded sales revenue thanks to its new iPhone 5 during the same period.

Apple was also ranked first in terms of sales volume, trading 27.4 million units of the iPhone 5 in the last three months of 2012. Samsung sold 11.6 million LTE smartphones, less than half that of Apple's total, over the same period.

Samsung had sold the largest number of LTE smartphones for the first three quarters, but its sales volume was significantly outnumbered by Apple in the last quarter.

Industry experts say Samsung saw its market share shrink in terms of sales revenue as its high-priced LTE smartphones were pushed away by Apple's iPhone 5 in terms of sales volume.

Samsung aims to stage a comeback with the launch of its Galaxy S4.

### Apple Bashes Samsung Electronics and Android OS

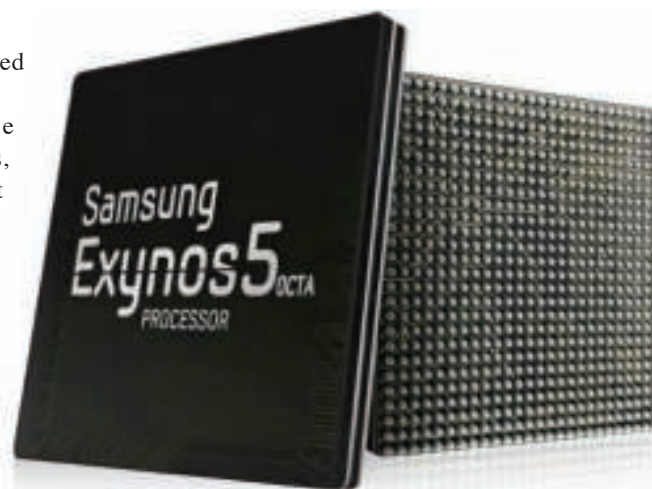
Phil Schiller, senior vice president of worldwide marketing at Apple, lashed out at Samsung Electronics and the Android operating system immediately

before Samsung unveiled its Galaxy 4.

According to the online edition of Forbes, the senior vice president held an interview with Reuters on March 13 (local time) in which he said, "Approximately 16%, and more than 50% of Android users, are using an operating system that has not been updated for one and two years, respectively." He added that the fragmentation of the platform could pose problems to consumers looking to purchase an Android phone. "Samsung Electronics is planning to release the Galaxy S4 this week, but rumor has it that its OS is not the latest version but one that is one year old, which means that those who buy the handset will have to wait some time for an update."

His remarks are drawing particular attention in that they were made just one day before the launch of the Galaxy S4 in New York. Experts are pointing out that his unprecedented attack on a competitor implies that Apple is seeing the new handset as a strong rival to the iPhone. Apple's iPhone had topped the global smartphone market for years but was overtaken by Samsung Electronics last year.

Phil Schiller also quoted the Mobile Threat Report of F-Secure Security Laboratory on his Twitter account last week. The report states that Android-based products are especially vulnerable to malicious codes.



### AP Used Only in Galaxy S4 Will Be Mass-produced Starting Next Month

The application processor (AP) that is included in the Galaxy S4 will be mass produced starting April.

Samsung Electronics said that it will begin production of the "Exynos 5 Octa," a high-performance mobile app powered by a total of eight cores, in Q2.

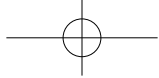
The Exynos 5 Octa's most prominent feature is its low energy consumption based on Arm designs.

The product featuring a high-performance eight-core mobile AP will be able to automatically switch between high-performance quad core and low-power quad core depending on what it is being asked to do.

The high-performance processor will deal with 3D video and high-end games, while the low-power processor will be used for things like sending text messages and e-mails.

The Exynos 5 Octa, equipped with a powerful 3D graphic performance, can process graphics twice as fast as the existing Exynos 4 Quad, and is appli-





cable not just to premium smartphones but also tablet PCs.

With the industry's first-ever adoption of an embedded Multi Media Card (eMMC) 5.0 and USB 3.0 interface, users can enjoy faster boot speed and shorter loading time in regards to Internet connection.

One Samsung Electronics official said, "With a faster speed and much lower energy consumption, mobile devices containing Exynos 5 Octa will be able to resonate with consumers."


### Samsung Develops Wristwatch

Meanwhile, Samsung Electronics announced that it is developing a wristwatch device that performs functions similar to smartphones.

"We have been preparing the watch product for along time," said Lee Young-hee, executive vice president of Samsung's mobile business, in an interview with Bloomberg on March 19, local time.

He added, "We are working very hard to get ready for it. We are preparing products for the future, and the watch is definitely one of them."

However, Lee didn't give specifics about what features the watch may have, how much it would cost, now when it would go on sale.

Samsung's disclosure is especially noteworthy because it follows a report last month that Apple has approximately 100 designers working on a wristwatch-like smart device called "iWatch." 



### Galaxy S4

## Unveiled in New York



Participating in the MWC 2013, the President of Samsung Electronics IT & Mobile Communications (IM) Shin Jong-kyun Shin said, "The Galaxy S4 will be unveiled in New York on March 14. I cannot say about details at the moment, but I'm sure it's very excellent," along with expressing the will to catch up with Apple this year by growing its table PC business doubled than last year.

President Shin said like that on February 24 (local time) at a press conference held at the venue of the MWC event in Barcelona, Spain. It was the first mention that had officially confirmed the time for debut of Samsung's strategic smartphone "Galaxy S4." In truth, Samsung's Galaxy S 4 had drawn much attention from the market creating many rumors. The latest rumor was that the product uses eight-core chips for application processor (AP). It appeared that Samsung intends to maximize the "Galaxy S4 effect" by having the sole debut ceremony for its latest version of Galaxy S series in New York, known as Apple's home.

Shin added, "We will also leap forward in the tablet PC market, based on our leading position in the global smartphone market. This year, we expect to boost sales of table PCs to more than double that of last year through our new Galaxy Tab 8.0. The global IT market is still shrunk, but the tablet PC market is expected to grow more than 50% this year. With the Galaxy Tab 8.0 representing the integration of our years-long technology and knowhow, we believe we will be able to upgrade our position in the tablet PC market."

According to Shin, in 2013, Samsung aims to sell more than twice as many tablet PCs as it did last year. Given that major market research firm International Data Corporation (IDC) estimated Samsung's tablet PCs sales for 2012 at 17.74 million units, the company's goal for 2013 stands at a minimum of 30 million units.

President Shin said Samsung will create new kinds of success stories and markets by applying the smartphone's DNA of success to B2B transactions, content businesses and service sectors. In particular, given that using smartphones at work is becoming a new trend, Samsung plans to actively make inroads into the B2B market. "We had concentrated on the B2C market until last year, so our position in the B2B market was relatively weak. This year, we will also place an emphasis on the B2B market" said Shin.

In this regard, Samsung released "KNOX," a new security solution dedicated to Android OS-based industrial systems, on February 24. This makes it easy to manage one mobile device for both personal and business purposes.

President Shin also answered a question about the introduction of voice LTE (VoLTE)-supported devices, saying "We don't have any plans for now. We think both LTE and 3G will co-exist for a certain period of time."

## HP Korea

# “At Worktainment with Touch, Worktainment on the Go”

On January 24, 2013, HP Korea (CEO Ham Ki-ho, [www.hp.co.kr](http://www.hp.co.kr)) hosted a product launch event entitled “Worktainment with Touch, Worktainment on the Go.” At the event, the company revealed the “HP ElitePad 900,” the first pad optimized for business use, as well as a hybrid PC called “HP ENVY x2.” The two products make it possible for users to enjoy so-called “Worktainment,” entertainment while at work, anytime, anywhere.

HP ElitePad 900,” a smartpad powered by Windows 8, enables users to create and edit documents, the kinds of functions not supported by existing pads, thereby allowing work to take place anytime, anywhere. Furthermore, the ‘HP ENVY x2,’ a hybrid personal computer, doubles as both a laptop and tablet, allowing the user to access and use the device at his or her disposal.

## HP ElitePad 900 — for the Best Business

The HP ElitePad 900 contains all the

functions necessary to efficiently carry out business. By creating the same environment as a personal computer through interoperability between Windows 8 and Intel x86, this product allows users to do everything from creating and editing documents to sending and receiving emails and working in cloud environments.

The HP ElitePad 900 offers a 10.1-inch IPS display topped with Corning’s second-generation Gorilla Glass. It weighs 630 grams and is 9.2mm thick, making the device highly portable without size and weight constraints. On top of that, with 3G capability, it can access wireless data communications networks anytime, anywhere.

The HP ElitePad 900 shows off its signature minimalist design with only two terminals available in the outer porter — power supply and earphones — and a simple metal body. It also has a 1,080p webcam in the front and a 8 million-pixel camera on the back, enabling video and photo-taking capabilities.


With the add-on option of an expansion jacket and docking, HP ElitePad 900 makes using necessary ports such as USB, SD cards, and HDMI output support more convenient. Furthermore, an Expansion Jacket Plus Battery, available as a separately priced option, increases battery life up to 19 hours and 30 minutes, eliminating the need to charge battery while on the move; and a Productivity Jacket, which comes in the form of an all-in-one keyboard, offering convenience to consumers

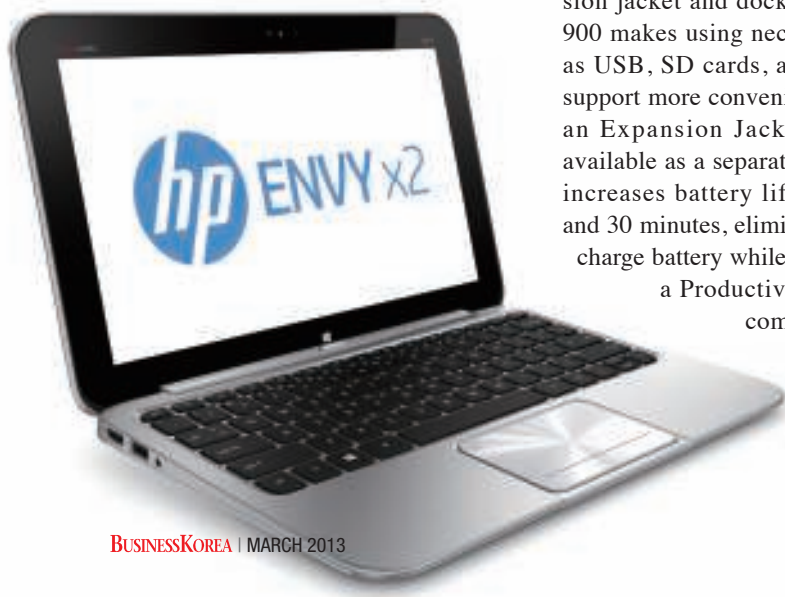


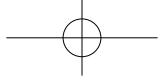
CEO Ham Ki-ho, HP Korea

who work a lot with documents. An HP Executive Pen is also available for a fee.

A perfect fit for business, the HP ElitePad 900 offers security programs and durability the existing pads haven’t offered yet. Passing the same Military Standard (MIL-STD) spec 810G test as HP’s previous Elitebook line, it protects data against external shock caused by frequent movements.

In addition, HP’s Client Security safeguards data against security threats in all business operations. BIOS Protection and Security Essentials enable safe business operations by improving defense against virus attacks and other threats, as well as a Trusted Platform Module (TPM) security chip incorporated into the device that enables data encryption. A thin, lightweight, easy-to-use device thanks to user familiarity with the existing personal computer environment, the device derives optimal efficiency by using touch buttons, and with the flexibility and functions of a tablet, it will help users realize business efficiency. 





## LTE Phones

# Half of All LTE Phones Used Worldwide Are “Made in Korea”



Female models hold LG Electronics' flagship phones to celebrate the company's cumulative global sales exceeding 10 million units.

It appears that one in two LTE phones used around the globe is made by a Korean company, such as Samsung Electronics, LG Electronics and Pantech. Samsung Electronics sold more than 30 million LTE phones last year, while LG Electronics' total LTE phone sales surpassed 10 million units as of the end of last month.

On March 3, global IT market research firm Strategy Analytics (SA) released a report on LTE phones sold during 2012. According to SA, Samsung Electronics, LG Electronics and Pantech sold 30.3 million (global market share 32.9%), 7.1 million (7.7%) and 4.4 million (4.8%) LTE phones, respectively, in 2012. Their combined market share (45.4%) accounted for nearly half of the entire global LTE market.

SA also disclosed company rankings. Apple stood in first place selling 33.4 million units of the iPhone 5 (36.3% market share), followed by Samsung Electronics and LG Electronics. Motorola was ranked fourth, selling 5.7 million phones (6.1%), and followed by Pantech.

Korea's second and third LTE leaders are now focusing on LTE phones to increase their market shares. According to SA, LG and Pantech's smartphone market shares in 2012 were 3.8% (8th) and 1.1% (12th), respectively, still far short of their LTE phone market shares. Meanwhile, during the last quarter of last year, LG sold 2.5 million LTE phones, nearly one third of its annual gross sales of such phones. Statistics show that LG's strategy has focused on high-margin LTE phones, not general sales volume. SA said LG's premium model G series and entry-level model F series received a good response and led to cumulative sales of 10 million LTE smartphones.

LG Electronics has become the world's number three in terms of sales revenue from smartphones, the first time it has done so.


LG had a 3.2% share in the global smartphone market in terms of sales revenue in the fourth quarter of 2012, beating HTC (2.9%), Sony (2.8%) and Blackberry (2.3%). Its ranking has

jumped five places from the same period in 2011 (8th), but still showed a big gap in terms of market shares with the world's second smartphone seller Samsung Electronics.

In truth, LG Electronics recorded large operating losses in its mobile phone business in 2010 and 2011. Following this, it drastically cut proportion of feature phones (low-performance phones), focusing instead on middle and high-priced smartphones and trying hard to differentiate products. Finally, its HD-display Optimus LTE broke the sales record of 1 million units in just three months after being launched at the end of 2011, and succeeded in turning to surplus in the first quarter of 2012.

As LTE phones gain popularity, LG Electronics recently launched its "F Series", as well as reinforced flagship products such as the "G Series," the "Vu Series" and the "L Series." LG aims to sell a quarterly average of 10 million smartphones.

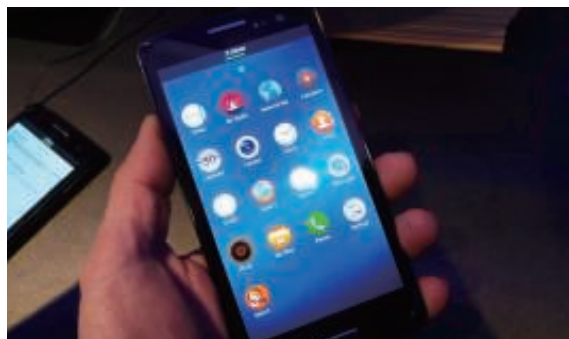
Pantech also hauled up its LTE market share from 3.9% in the first quarter of last year to 5.8% in the third quarter. When Apple launched the iPhone 5 in late September last year, most market competitors saw their market shares fall for a short period of time. Pantech was the only company that did not. Indeed, Pantech concentrated its full energy on LTE phones last year by launching the Vega S5 and Vega R3 in Korea, and the Marauder and Flex in the US through local service providers such as Verizon and AT&T.

92.1 million LTE phones were sold worldwide in 2012, more than a 13-fold increase from 6.8 million units the year before, said SA. 



## 'Tizen' Belt

# Efforts to Set Up Are Taking Off



Telecom giants and big-name handset manufacturers in Asia, including Korea, Japan, and China, are looking to establish a Tizen belt, which is emerging as a formidable competitor to market leaders such as Google and Apple. Once formed, "The Korea-China-Japan Tizen Belt," comprised of mobile heavyweights such as Korea's Samsung Electronics and KT, Japan's NTT DoCoMo, and China's Huawei, will wield enormous power in the worldwide mobile market.

According to an industry source on March 11, mobile behemoths in Korea, Japan, and China, are moving to launch a Tizen platform.


Tizen is grabbing the spotlight as its pursuit of an open platform enables the formation of an application market beyond the control of companies like Google and Apple. Samsung Electronics and Intel are leading the development push, with a series of global mobile operators recently joining the efforts. In the wake of the Mobile World Congress 2013 held in February, telecom operators and manufacturers in Asia actively participated in the move, resulting in the emergence of a new counterweight to Google and Apple.

In particular, the move was given a boost when KT's Chairman Lee Suk-chae visited China ahead of the event to meet with China Mobile CEO Li Yue and NTT DoCoMo CEO Kiyohito Nagata. In a meeting designed to discuss ways to enhance OASIS, an app marketplace, reportedly shared ideas for the common goal of setting up the Tizen belt.

If cooperation among the three global telecom giants materializes, it would send a big shock wave through the global mobile industry. With China Mobile's 700 million subscribers, NTT DoCoMo's 54 million, and KT's 18 million, a combination of the three would lead

to the creation of the largest cooperative entity in the world.

Currently, KT and NTT declared their intention to actively participate in the Tizen association. China Mobile is somewhat cautious, but with access to Google (Android service provider)'s search service being blocked by the Chinese government, the Chinese firm is actively exploring alternatives. In the process, the company is seriously considering Tizen as its new operating system. In particular, Huawei, the country's biggest smartphone and network equipment maker, also joined forces, thus shifting the center of gravity to Tizen.

Experts note that in order to attract active participation from China Mobile, Tizen group should clearly express its intention to open up. One high-ranking KT official said, "China also appears to regret insisting on independent standards," adding, "Companies like Samsung Electronics, which are currently leading the move toward Tizen, need to send out a clear message that 'We will share what we have.'" 

## Chinese Smartphone Market

### Samsung Electronics Ranked Top in Market Share

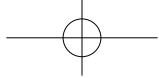
Samsung Electronics topped the Chinese smartphone market in 2012 for the first time in its history. According to market research firm Strategy Analytics, Samsung Electronics took up 17.7% of the Chinese market last year, 5.3 percentage points up from a year earlier.

This is the first time that Samsung, which began to sell smartphones in China back in 2009, has ranked first in terms of smartphone market share in the region. In 2012, Samsung sold 30.6 million smartphones in China, to almost triple its local sales volume year-on-year.

Samsung Electronics is currently working closely with the nation's three largest local mobile carriers; China Telecom, China Mobile and China Unicom.

In the meantime, Nokia collapsed last year whereas Chinese companies enjoyed a strong performance in the Chinese smartphone market. The former, whose local market share had reached 29.9% in 2011, fell to seventh place in 2012 with a share of 3.7%. Meanwhile, Lenovo boosted its market share from 4.0% to 13.2% during the same period to rise to second spot.

Four more Chinese companies joined the top 10 list: Huawei (fourth, from 8.3% to 9.9%), ZTE (sixth, 8.1% to 8.4%), Xiaomi (ninth, 0.5% to 3.3%) and Tianyu (10th, 0.8% to 2.1%). Apple had posted a share of 12.3% in 2011, just 0.1 percentage points short of Samsung's, but slid to third position with 11.0% last year. Others in the top 10 were Coolpad (fifth, 9.7%) and HTC (eighth, 3.6%).



## OLED TVs

# Why Would Samsung Invest in Sharp?

Samsung Electronics, which competed fiercely with LG Electronics until recently in the large-sized OLED TV industry, has found itself lagging behind since LG's release of a 55-inch OLED TV product that features its own advanced technologies.

Both two companies came up with 55-inch OLED TV prototypes early last year. However, LG has succeeded in manufacturing its product on a large scale ahead of Samsung, which has yet to begin mass production. Meanwhile, LG recently announced an additional production facility expansion plan at an investment of at least 700 billion won and designed for larger OLED panel capacity.

For Samsung, which dominated the global TV market for seven consecutive years, the defeat in the OLED TV segment, even if temporary, is painful as it could decide the fate of the TV manufacturers down the road.

Unlike liquid crystals in LCD panels, each pixel that makes up an OLED panel emits light at a reaction rate at least 1,000 times faster than LCD panel, creating a much better picture quality. In addition, OLED panels do not require any backlight, meaning their thickness can be reduced significantly and not at the expense of compromising power efficiency.

Samsung's delay in mass production is due to technological difficulties related to the manufacturing process. Roughly two types of techniques are required to produce OLED TV sets. One is the deposition technology for organic light emitting material and glass substrate, and the other is technology for producing TFT, which is a sort of driv-

ing circuit device. LG Electronics has successfully developed its own WRGB deposition and oxide TFT technologies, enabling it to release the world's first large-screen OLED TV set.

Under these circumstances, WRGB deposition combined with oxide TFT is gaining ground as the best way to manufacture large-sized OLED TVs. Sony and Panasonic used the same method for their 56-inch prototypes revealed at the Consumer Electronics Show (CES) last year.


However, Samsung Electronics is still sticking to RGB and low-temperature polysilicon (LTPS) TFT, which is more suitable for small-sized panels. According to industry experts, the technique entails high production costs and its production yield and efficiency are considered lower than those of the other method, which is why many in the industry are forecasting that Samsung will change its method to WRGB and oxide TFT.

In fact, Samsung itself is mulling over the switch. Although Samsung has worked on these technologies on its



own, the consensus is that technological perfection has yet to be achieved and thus there is some possibility that Samsung will purchase the techniques from outside.

This is why some people are mentioning oxide TFT technology as one of the reasons for Samsung's investment in Sharp, however, it is unknown whether the tie-up includes a technology agreement. If Samsung decides to produce oxide TFT with the aid of Sharp, its OLED TV manufacturing can gain some speed. Sharp is currently leading the development of oxide TFT technology.

David Hsieh, vice president of Greater China Market at market research firm DisplaySearch, posted an article on his company blog on March 6, reading, "There is some possibility that Samsung will make use of Sharp's oxide TFT technology to work on new OLED TV sets." He added, "Samsung is currently intending to decrease its investment in its own LCD panel production facilities in China and it is likely to put more focus on OLED TV products than LCD panel capacity expansion." 



## Unlimited Evolution of IPTVs

# Say Good-bye to Settop Boxes and Remote Controls



Promotion of Samsung Smart TV

The “Smart” wind is strong in the Internet TV (IPTV) industry. Just a few months after the smart settop box was first introduced, consumers are soon likely to be able to watch IPTV with no set-top box attached.

LG U+ recently completed the Telecommunications Technology Association (TTA)’s test to obtain approval for settop box software. This approval process, established by the Korea Communications Commission (KCC) earlier this year, is a technical certification system regarding the replacement of settop box hardware with new kinds of software. LG U+ is expected to begin IPTV services in the form of smart TV applications as early as next month. Subscribers of LG U+ IPTV will be able to view IPTV by downloading an application from the smart TV application market. A source from LG U+ said, “Sub-


scribers can save rental costs for set-top boxes and there will be no extra charges.”

SK Broadband also plans to launch a no-settop box IPTV. A source from the company said, “Our new IPTV has a settop box inside the TV set. We will launch it in alliance with a smart TV manufacturer during the first half of this year.”

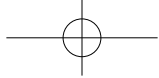
Along with the innovation of IPTVs, remote controls are also evolving. Upon launching the Olleh TV Smart Pack, KT introduced the “Olleh TV Guide App”, which allows smartphones and smartpads to replace existing controllers. The App allows smartphones to function just like a remote controller, including power on/off, channel and volume controllers, and VOD search. Furthermore, users can connect a wireless mouse and keyboard to the settop box, allowing them to use the smart IPTV just like a PC.

LG U+ added a mouse and keyboard function to their remote control. Using a QWERTY style keyboard attached to the lower part of the remote control, users can input letters just like on a PC keyboard. The remote has a sensor that recognizes upward and downward directions, meaning that when it is being used the keyboard does not respond to touch. It is also equipped with a touch pad, allowing users to click the screen just like a mouse. The company explained, “We will support a voice recognition function from March. This will allow users to change channel, even when you don’t know the exact number of the channel you want, just by speaking.”

SK Broadband’s smart settop box and no-settop box IPTVs, both of which are to be launched within the year, will provide keyboard and mouse functions through a user’s smartphone.

In the meantime, the nation’s three major IPTV suppliers are now providing smart IPTV services using a smart settop box and cloud technology. In January of this year, KT released the Olleh TV Smart Pack, which provides a new smart settop box for an additional 1,000 won per month. LG U+ has been providing “U+TV G” mounted with Google TV 2.1 for 9,900 won per month since October last year. Meanwhile, SK Broadband has begun trials of its “B tv Cloud Streaming” service that makes it possible to enjoy various kinds of app content using existing settop boxes. SK Broadband said, “You don’t have to change the existing settop box to a new smart settop box. You can simply enjoy smart TV functions using a general settop box.” 





## Telecommunications Carriers

# Bringing LTE to Their Laptops

**S**K Telecom and KT will release laptops that support Long Term Evolution (LTE).

According to a telecommunications and electronics industry source on March 6, both companies plan to sell Samsung Electronics' ATIV series Windows laptops that contain an assortment of LTE communications modules.

A laptop equipped with LTE modules enables Internet connection anytime, anywhere, even in wired local area networks (LAN) or WiFi dead zones so long as LTE cellphones work.

KT plans to introduce Samsung Electronics' ATIV series of smart PCs by the end of this month. The new product, with a monitor and a keyboard separated from each other, can be used as a tablet PC if necessary.

SK Telecom also determined recently that it would introduce Samsung's ATIV series of smart PC pro. The telecom operator is currently testing network interoperability with a planned launch for April.

The model has all the necessary components needed by high-performance laptops, including an Intel i5 processor, 4 GB RAM, and solid-state drive (SSD).

Both are reportedly negotiating with companies such as HP and LG Electronics to roll out LTE laptops.

## SKT to Launch Four-Times Faster WiFi Access

Meanwhile, SK Telecom will launch a WiFi service that is four times faster than the current network, starting the end of this month.

The Korean telecom giant announced on March 18 that it had set up a giga-

class WiFi network offering speeds of up to 1.3Gbps at Seoul Station. The company plans to expand the network to data traffic concentrated areas such as terminals and major buildings across the country.

The giga-class WiFi provided by the company will enable data speeds of up to four times faster than the existing 300Mbps WiFi used mainly by laptop computers and smartphones. The service is by far the fastest among all WiFi services current available around the world.

The company will launch commercial services at the end of this month after obtaining equipment certification from the Korea Communications Commission. Local smartphones to be rolled



out after April, including the Galaxy S4, will offer Giga WiFi connectivity.

SK Telecom embarked on developing such equipment last May based on the 802.11ac technology, a giga-class WiFi standard set by the Institute of Electrical and Electronics Engineers (IEEE), and completed development in December last year. The giga-class WiFi uses three antennas to transmit and receive radio waves and taps the 80MHz bandwidth in the 5GHz frequency band.

One company official said, "With the commercialization of giga-class WiFi, WiFi technology will develop in leaps and bounds, enabling speeds of up to 50 times faster than the current network."

## KT to Build LTE Network in Rwanda

KT announced on March 10 that it will build a Long Term Evolution (LTE) network in Rwanda.

KT and Rwanda Development Board (RDB) entered into a memorandum of understanding to set up a LTE joint venture. Although company size and share ownership are still in discussions, KT plans to launch efforts to set up a network in the African country this year. The Korean firm will be charged with the overall management of the joint venture, such as providing technical support and transferring operational expertise, while the Rwanda government will support business operations.

The LTE network will be established at a national level. Local mobile carriers and Mobile Virtual Network Operators (MVNOs) will be able to provide LTE services over the LTE network to be built up by KT. One KT official said, "As we will set up the LTE network across the country, the size of the business will be huge."

Both sides are also scheduled to discuss forming a joint venture that would specialize in system integration (SI) and information & telecommunication system, and which would accelerate the growth of small and medium-size enterprises in Rwanda. Patrick Nyirishema, Director General of RDB in charge of Information Technology, said, "The planned LTE network will bring not only Rwanda but other African countries a step closer toward greater development."

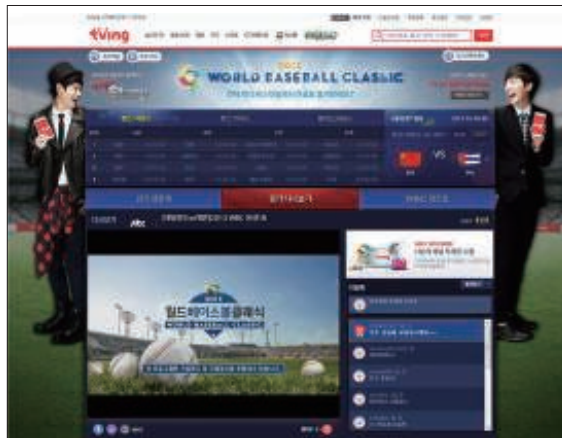
## Competition for Mobile Viewers

# Becoming Fierce among Cable, Telecom, Terrestrial Networks

Office Worker Lee Joon-beom often studies English using his smartphone while commuting from Sadang-dong in Seoul to Ansan City by subway. On March 4, he watched the Korea-Australia World Baseball Classic (WBC) game via his smartphone on the way home. Like Lee, most subway passengers now have their eyes focused on their smartphones.

As an increasing number of people watch TV on the move, competition is getting fiercer among cable TV networks, telecommunication businesses and terrestrial broadcast service providers in the fight to attract mobile viewers. Cable networks are expanding N-Screen services aimed at mobile viewers, while telecommunication businesses are promoting combined products and vast amounts of content. Furthermore, terrestrial broadcast service providers are appealing to viewers in alliance with TV manufacturers. N-Screen allows the same content to be streamed seamlessly on a number of different devices, including PC, TV and cell phone.

According to industry sources on March 5, Multiple System Operators (MSOs) and local cable networks recently launched N-Screen services. Last month, C&M, the biggest cable company in the Seoul metropolitan area, unveiled "Pooq" in cooperation with Contents Union Platform, a joint venture of terrestrial networks. Pooq is a kind of N-Screen service dedicated to terrestrial TV programs. Subscribers to Pooq can enjoy terrestrial broadcast pro-



CJ Hellovision's N-Screen Service "TVing"

grams and VOD through PC, tablet and smartphone without limits. Competition is apparently heating up as C&M enters the N-Screen service market following CJ Hellovision (TVing), Hyundai HCN (EveryOn TV) and Tbroad (Tbroad).

Furthermore, some local cable companies, including Taegu Cable Networks (TCN), Kwangju Broadcasting (KBC) and Gangwon Broadcasting Networks (GBN), have held hands with EveryOn TV and begun real-time local channel broadcast services. KCTV Jeju provides real-time local channel broadcasts, local news and VOD services through its smartphone application called "KCTV Mobile."

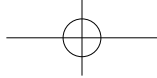
Mobile carriers are also expanding N-Screen services to increase revenue through the distribution of content. KT is providing roughly 40,000 popular educational and animation content on demand through an application-style mobile video service called "Olleh TV Now." SK Broadband is trying to make a difference through its "BTV Mobile" by currently offering an on-demand ter-

restrial program streaming service.

Terrestrial networks have held hands with TV manufacturers so as not to fall behind. Contents Union Platform is expected to launch a new kind of smart TV featuring "Pooq TV" in alliance with Samsung Electronics and LG Electronics soon. With this TV, viewers will be able to see lots of channels via the Internet while not subscribing to cable TV, IPTV or satellite TV.

Cable networks, mobile carriers and terrestrial broadcasting companies are actively exploring the market because the number of "mobile customers" who watch TV on the move has sharply increased. According to the Korea Information Society Development Institute (KISDI), the proportion of N-Screen service users nearly doubled to 53.1% in 2012, rising from 29.8% in 2011. For example, 51.2% of CJ Hellovision's TVing viewers watched Korea's second WBC game, with 74.6% of them using mobile devices such as smartphones and tablet PCs.

"In the past, people consumed content mostly through TV. But now, as tablets and smartphones gain wide popularity and unlimited 3G and LTE services have been expanded, the number of mobile users has sharply increased. I think more consumers will choose mobile streaming services in the future because technology will not go only to watching TV through N-Screen but also to two-way services in which consumers can directly participate in shopping programs, voting, etc.," said Kim Young-ran, a team head of CJ Hellovision. ■



## Rechargeable Batteries

# Samsung SDI Dominates Global Market

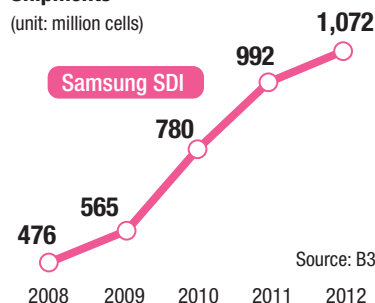
Samsung SDI shipped over one billion rechargeable battery cells last year, the first time in its history it has reached the figure.

According to Japan-based market research firm B3 (formerly ITT), Sam-

sung SDI shipped 1.072 billion secondary batteries in 2012, continuing its No.1 position in the global lithium ion battery market for three consecutive years. Its market share reached as high as 26.0% last year, showing consistent

## Small-size Rechargeable Battery Shipments

(unit: million cells)




Source: B3

growth from 19.8% in 2010 and 24.3% in 2011. It led Panasonic, the No.2 player, by 7.3%, despite this gap being as narrow as 0.9% in 2011.

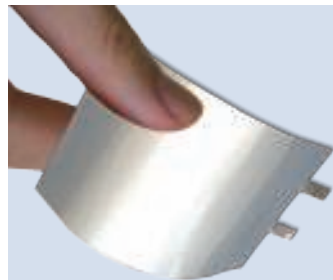
B3 analyzed in its report that Samsung SDI dealt successfully with the decreasing market demand for cylindrical rechargeable batteries by means of its new business in Malaysia, cost reduction and expansion of new applications, such as electric bicycles. "The company maintained its lead in the rectangular battery segment of the market with its products used in Galaxy smartphones," it added.

Korea is continuing to increase its presence in the global rechargeable battery industry while successfully keeping its rivals Japan and China in check. In 2010, Japanese manufacturers recorded a combined shipment of approximately 1.6 billion cells, with their Korean counterparts standing at approximately 1.36 billion. However, the former figure fell to 1.24 billion whereas the latter rose to 1.79 billion. Chinese players, in the meantime, increased their supply from 0.78 billion to 0.876 billion between 2010 and 2012 to pose a challenge to Korean and Japanese secondary battery manufacturers.

"Last year, we shifted our product portfolio focus to high value added products used in smartphones and tablet PCs, etc., while diversifying our customer base by opening up new markets," said Samsung SDI president Park Sang-jin, adding, "We'll further solidify our presence in the market by widening the technological gap." 

## Flexible Batteries

## Rocket Electric to Develop with Graphenes Technology



Rocket Electric announced on March 4 that it had entered into a business agreement with IDT International, a company specializing in the production of graphene, to jointly develop flexible batteries. The deal would ensure a stable supply

of high-quality graphene for the electric company while also enabling it to take advantage of IDT's technology. IDT is currently producing and supplying 1 kg of best-quality graphene a month, and this year will expand its capacity to 600 kg a year.

Graphene, a carbon nanomaterial with one of its surface layers removed, is a next-generation electronics material being called "The New Dream Material" thanks to its heat conduction, light transmission, and flexibility. Its heat conduction is twice that of diamond, while its electricity conduction is 100 times higher than copper. The material also conducts electricity well, with its electric properties staying intact even when bended or folded, making it an essential material for applying flexible electromagnetism.

The two companies plan to advance the commercialization of graphene by working together to develop technology for producing graphene optimized for batteries. IDT currently holds 13 patents related to graphene manufacturing and application both at home and abroad, and from last year has been supporting the development of graphene applications (batteries, and textile materials) by companies and research institutes, both foreign and domestic.

One Rocket Electric official said, "Graphene batteries are fully charged after only a short period of time compared to existing ones, and their capacity and efficiency improves," adding "We plan to expand the scope of its applications to LED or special, heat-resistant materials by becoming a first-mover in the flexible battery market." IDT official said, "Global secondary battery manufacturers are actively conducting R&D activities using IDT's graphene. Through joint R&D efforts with Rocket Electric, we will secure graphene production technology optimized for batteries and commercialize graphene batteries."



## Patent Attack

# IBM Is Even Targeting Large Domestic Corporations

Patent giant IBM is stepping up patent attack on domestic corporate giants such as LG Electronics and NHN by e.g., offering to sell off its patents. Experts, while saying that this proposal appears to be a move designed to sell its patents, do not rule out the possibility of a future lawsuit. The U.S. patent behemoth is also ratcheting up the pressure on the domestic SMEs and established firms to which it had sent emails demanding licensing (patent fees) back in January by sending emails to them again.

In response, one patent lawyer said, "Compensation in patent infringement cases is determined based on the time when such violation is recognized," adding "Some companies send an email or pay a visit to target companies in order to clarify such timing ahead of filing a patent lawsuit. So, we cannot say that IBM's proposal to sell off its patents is unrelated to its move before launching into litigation."

IBM, while offering to sell off its patents to large domestic firms, is also putting up pressure on domestic SMEs, urging them to obtain licensing from it. "IBM sent emails to those firms asking them to get licensing with summarized list of some 60 patents," and went on to say, "We plan to exercise caution in responding to such move while conducting firstly patent analysis." Patent experts expect that the U.S. firm will first send emails to companies concerned and then select target companies before launching intensive negotiations with them.

One lawyer who specializes in patent lawsuits said, "Even for big companies, the prospect of engaging in mul-




tiple lawsuits at the same time can be daunting. So they pick one or two cases to focus their attention," and went on to advise "As the consequence of the first lawsuit affects other companies, industry-wide cooperation is needed when it comes to lawsuits such as the one seeking patent nullification."

Observers figure that IBM's patent strategy has shifted away from a focus on licensing aimed at large corporations and toward a "focus on sale to large corporations and on licensing targeting SMEs and established firms." Shim Choong-sub, a senior patent lawyer with Jihae Patent & Law, said, "Since IBM has had licensing contracts with large corporations over the last few decades, there aren't many such companies left to sign additional deals. But there is a relatively greater number of small businesses and medium ones, which have mostly been ignored on this front, to enter into a new contract with. So some kind of a shift in strategy seems inevitable."

In particular, with too many licensing deals already made and a shift in technological center of gravity from personal computers to mobile, the patents IBM holds are deemed less valuable. In fact, Ocean Tomo, a patent valuation firm, said "In terms of the number of patents, IBM ranks No.1, but in terms of valuations of patents, it ranks around

8th place." That's partly due to the fact that IBM's IT service-related patents have much less value than Microsoft's patents related to gaming and software. One patent lawyer with patent management firm interpreted IBM's move, saying, "As the world moves from PC-based to a mobile-based model, and the environment is changing rapidly with the emergence of big data and social networks, IBM is having hard time positioning itself in the marketplace. Faced with such difficult conditions, the patent behemoth seems poised to turn to licensing aimed at small and medium businesses as part of efforts to seek some kind of breakthrough." One U.S. patent expert said, "Having large number of patents doesn't necessarily mean you have high patent valuations," and noting "IBM hasn't had much success utilizing and commercializing its large patent pools."

In response, a spokesperson for IBM Korea said, "Though we sent emails to domestic firms as a salutatory gesture, they pose no threats to those companies." IBM's general manager in charge of IP in Asia reportedly said, "If anyone sent an email to a Korean company demanding licensing, I will reprimand him or her." IBM US declined to give an immediate answer.

Meanwhile, The Korean Intellectual Property Office (KIPO) is scheduled to enter into a memorandum of understanding with major trade groups in the middle of this month to collaborate on intellectual property rights-related dispute resolution. Through this, SMEs will seek to share disputes-related information and establish a cooperative system to forge a joint response. 

newpower newstandard



2011  
The first EPC contract award

2009  
A/E and NSSS contract award for  
Braka Nuclear Power Plant, UAE

2001  
Received the "Project of the year award"  
from Power Engineering Magazine (US)

1996  
Received the "the world's top power  
plant award" from EPI Magazine (US)

1987  
Selected as Korea's first prime contractor  
for a nuclear plant project and designed  
a standardized coal-fired power plant

1975  
Established to secure self-sufficiency in the  
design of nuclear and thermal power plants

## KEPCO E&C's top competitor is KEPCO E&C.

Surpassing Korea No.1,  
we are marching towards being  
the number one Global Power EPC.

A simple but big question brought us to where we are today.

"Can Korea construct a plant with its own technology?"

Our continued efforts paid off. We are proud of  
our self-reliance in design technology.

We at KEPCO E&C export our technology around the world!

Our track record is not all we have. Our goal is to become  
a global standard setter in the power EPC market.

Challenges are nothing new to us as a company.



## LNG Carriers

# Major Shipbuilders Rejoicing at Large-scale LNG Developments

A series of LNG development projects are scheduled to be launched throughout the first half of this year to raise market expectations.

At present, Korean shipbuilders are accounting for some 80% of the international order backlog in the LNG carrier industry and therefore expected to take the lion's share of new shipbuilding orders. "LNG carriers and LNG-FSRUs, or floating storage and re-gasification units, cost US\$200 million to US\$300 million each and their high added value will contribute greatly to the shipbuilding industry's efforts for productivity enhancement," said an industry insider.

Particularly, major local shipbuilders are paying keen attention to the Yamal LNG Project in Russia, through which up to 16 new LNG carriers are built from this summer. Since the vessels are going to be used in the Arctic Ocean region, the unit price of the ships is estimated at from US\$300 to US\$350 million, at least US\$100 million higher than that of general LNG carriers, and the total value ordered at between US\$3.6 billion and US\$5.6 billion. Hyundai Heavy Industries, Samsung Heavy Industries, Daewoo Shipbuilding & Marine Engineering (DSME) and STX Offshore & Shipbuilding are making preparations for the bidding now.


In the meantime, Samsung C&T Corporation and GDF Suez in France are bidding on the contract for an LNG-FSRU project in Uruguay. The final bid is scheduled to start in April. Samsung Heavy Industries is likely to join the project as the shipbuilder once Samsung C&T wins the deal.

Samsung Heavy is also expecting much from another LNG-FSRU project

in Jordan as Golar LNG, an LNG shipping company in close partnership with it, has been awarded the contract. "There is some possibility that Golar LNG will convert some of the previously ordered LNG carriers into LNG-FSRUs," said



the company. An LNG-FSRU is US\$70 million to US\$100 million more expensive than an LNG carrier. Samsung and Hyundai Heavy Industries are about to win orders for six new LNG carriers in Nigeria, too. Nigeria LNG Limited is going through final negotiations before placing four orders to Samsung and the other two to Hyundai.

In addition, Hyundai Heavy, Samsung Heavy and DSME are currently in possession of eight LNG carrier options combined — one by Hyundai, four by Samsung and the rest by DSME — which can be exercised in or before July, raising the expectations of additional new orders. 

## China Became the Largest Shipbuilder in the World

It has been found that China overtook Korea in the global shipbuilding industry to rise to the number one position.

The Korea Chamber of Commerce & Industry (KORCHAM) announced on February 27, citing the recent data from the Korea International Trade Association, that Korea's annual shipbuilding exports plummeted last year to US\$37.8 billion whereas China recorded exports of US\$39.2 billion during the same period.

Korean shipbuilders had a nightmare year in 2012. The decrease in the exports was close to twice those of Japan and China and the total exports dipped below US\$40 billion for the first time in five years due to the global economic recession and capital liquidity problems.

"It is because of the government's full-scale support that China's shipbuilding industry, which is considered to be falling behind in terms of technological competitiveness, made such great strides," said the KORCHAM, handing in a policy support proposal on the same day to the Ministry of Strategy and Finance, the Ministry of Knowledge Economy and the Financial Services Commission. The proposal suggests more financial support for local shipbuilders, the timely establishment of a guarantee fund in the industry and measures for the stabilization of the debenture market to deal with the crisis situation.

Industry experts are also calling for the government to expand its financial assistance for the benefit of industry participants. "Not a few contracts that were won through strenuous efforts have been flown out the window due to the lack of financial backup," remarked one of them.



## ITO Film Market

# Making Efforts to Break the Japanese Monopoly

LG Chem will make additional investment in expansion of product lines this year following last year while Kolong looks set to enter the market

Domestic chemical players will embark on efforts to catch up with the dominant Japanese firm in the market for indium tin oxide (ITO) film, a core component of the touch panel. A case in point is LG Chem which poured money into expanding its plant. Nitto Denko grabs some 90 percent of global market. Korea currently depends entirely on imports of ITO film, which is used to make smartphones and tablet PCs.

According to those familiar with the industry on February 25, LG Chem recently decided to make additional investment to expand its ITO film line this year, apart from the 50 billion won production facility it had built last year. The first line is to be used to make prototypes, and the new line will be used for mass production.

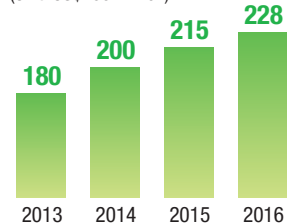
One company official said, "We have decided to make investment into building an ITO facility this year following last year."

The timeline and investment amount are yet to be known. LG is preparing to start full-scale mass production of ITO film by, e.g., testing prototypes in the production facility completed in Q2 and Q4.

ITO film is a PET film thinly coated with indium and tin so that the film conducts electricity. It is a core component of the touch panel. Touch panel is mostly an electrostatic capacity type that recognizes location based on static electricity from the fingers, not on the pressure

**Prospects for the global touch panel market**

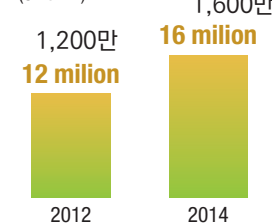
(Unit: US\$100 million)



Source: Display Search

**Prospects for demand for ITO films**

(Unit: m<sup>2</sup>)



Source: Industry total

put on. It is a material used to create X- and Y- axes that sense finger contact points. As much as it is important, the price is high, representing 24% of the total costs of touch panels, making it the second most expensive component after tempered glass.


In particular, amid an ever-growing market for smartphones and tablet PCs, demand for ITO is also rising. The industry expects the market to grow from around 12 million m<sup>2</sup> a year to over 16 million m<sup>2</sup> two years from now.

Buoyed by such market conditions, Nitto Denko continues to post double-digit growth in operating profits even amid global economic stagnation. According to the earnings report released late last month, the company recorded JYP 606.5 billion in sales from April 1 to December 31 of last year, an increase of 9.4% compared with the same period a year earlier. Operating profit rose 13.6% to JYP 55.1 billion. Its rate of operating profits approached 10 percent with net income of around JYP 36 billion. One industry official said, "It is hard to esti-

mate exactly the percentage the ITO business makes up of Nitto Denko's overall business," adding, "ITO business is the ultimate cash cow for the company."

The reason that LG Chem launched efforts to domestically produce ITO films is its high rate of return and increase in demand. Tricky technological barriers, however,

remain a challenge. In order to enable a sensitive response by the touch panel, materials such as indium should be coated evenly on the film. Yet, such process called chemical vapor deposition (CVD) is technically difficult to implement. Not a few companies both at home and abroad failed to break the monopoly held by the Japanese firm even after developing ITO films because they failed to make products whose quality is high enough to be adopted in high-end smartphones. The atmosphere is quite different in LG Chem. Observers predict that once it launches mass-production, it could pose a serious threat to the Japanese firm.

Not just LG Chem, but Kolon Industries is also setting its sight on the market. The company has been working on developing an ITO film for several years using the existing film-producing technology, and is currently testing products. Apart from that, several domestic chemical companies are reportedly planning to manufacture prototypes, etc., at a product testing phase. 

## Competition in BT and Healthcare

# Korean and Japanese Companies Playing Tight Match

Sony, in spite of the difficulties it is going through in the electronics and IT industries, has recently invested approximately 600 billion won to purchase shares in Olympus, which takes up approximately 70% of the global endoscope market. The intention is seen as not to let its Korean rivals catch up in the biotechnology and healthcare industries. However, Korean companies are making thorough preparations to pull ahead like they did in the electronics industry.

"Both Korean and Japanese biotechnology and healthcare companies are latecomers when compared to the US and Europe, and thus it will be unavoidable for them to be subject to fierce competition until they get on the growth track," said an industry insider on March 18, adding, "The two countries have been toe-to-toe in the electronics industry, but they are now about to be engaged in a new battle in the BT and healthcare sectors, two of the most future-oriented ones."

These days, major Korean enterprises like Samsung, LG, SK and Hanwha are striving to promote their BT and health-

care businesses, while an increasing number of their Japanese counterparts, including, automakers, electronics manufacturers and general trading and chemical companies, are also stepping into the market. According to the Samsung Economic Research Institute, Mitsui & Co. is currently knocking on the doors of global hospital management and medicine markets, while Mitsubishi Corporation is attempting to export skin cancer diagnostic units to a larger number of regions.


Electronics makers are no exception either. For example, Sony has taken over Micronix, an American medical equipment manufacturer, and increased its investment in the healthcare sector. Automakers such as Toyota Motor Corporation are setting foot in the industry as well in conjunction with regional medical centers.

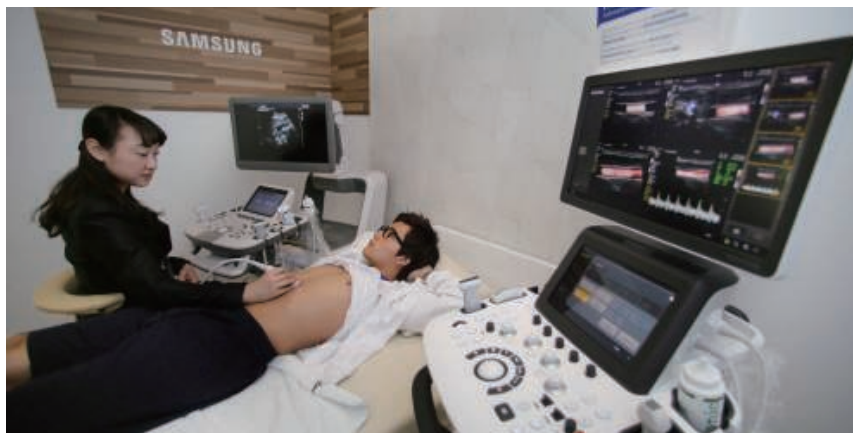
The same trend can be seen in Korea. Big businesses in the electronics, chemical and telecom sectors have been accelerating their market penetration for a couple of years. Samsung Group entered the biosimilar market by setting up Samsung Biologics and Samsung Bioepis,

and has expanded its medical equipment business by means of its advanced electronics technologies. Likewise, LG Group is moving ahead with some projects to further develop its healthcare business, led mainly by LG Life Sciences and LG U+. SK Telecom and SK Chemical are taking a similar role in the SK Group, as is Hanwha Chemical in Hanwha Group.

It is because of the industries' huge growth potential that these non-pharmaceutical companies are rushing to the biotech and healthcare markets. The global healthcare market grew from US\$190 million to US\$430 million in 2007, and its growth is expected to speed up owing mainly to the aging global population.

However, Korean and Japanese BT and healthcare companies have a far way to go to be shoulder to shoulder with their US and European counterparts. "The global healthcare market is currently dominated by GE and Johnson & Johnson, with Korea and Japan having just thrown down the gauntlet," said an industry expert, continuing, "It will be quite interesting to see which one of the two joins the ranks of market leaders first."

In the IT and electronics sectors, Korean companies have narrowed their gap with Japanese enterprises, with Samsung, LG and so forth now leading the global market in many segments. "The two nations are considered neck-and-neck with each other for now in the biotech and healthcare sectors, with the key to success appearing to lie in how soon they can catch up with American and European market leaders," said Lee Seungchul, a senior researcher at the Samsung Economic Research Institute. 







The world-class busan port is  
building the brands of the republic of korea



## Korean Major Shipping Companies

## Facing Acute Financial Problems

It has been pointed out that the four largest shipping companies in Korea — Hyundai Merchant Marine, Hanjin Shipping, SK Shipping and STX Pan Ocean — need to further diversify their financing sources as corporate bonds worth a combined two trillion won are scheduled to reach maturity this year. The companies have dealt with liquidity risks by issuing company stocks as well as by means of short-term borrowing. However, the corporate bond market is shrinking, increasing the need for more aggressive paid-in capital increase, asset disposal, etc.

According to the Korea Securities Depository and Hi Investment & Securities, the four companies' total corporate bond balance amounts to 6.76 trillion won, with 1.755 trillion won of that (26%), coming to maturity this year. Hanjin Shipping, which has a credit rating of A-, has the largest part of this with 634.1 billion won, followed by Hyundai Merchant Marine (A-, 480 billion won), SK Shipping (A0, 241.9 billion won) and STX Pan Ocean (BBB+, 399.4 billion won).

However, they have few ways to procure funds to repay these debts. Between 2011 and the first half of 2012, they had

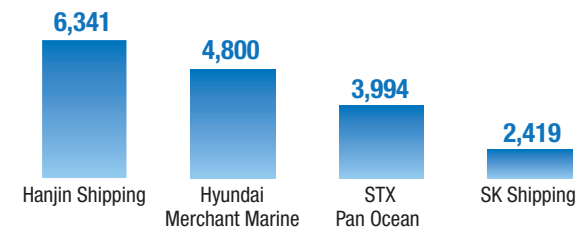
taken advantage of abundant market liquidity to make repayments by issuing corporate bonds and corporate bills. However, the market began to contract in September last year when Woongjin Group filed for court receivership.

STX Pan Ocean tried to issue corporate bonds worth 100 billion won this year yet 70% remained unsold. Hanjin Shipping and Hyundai Merchant Marine entered the market in June and December last year, respectively, but have been unsuccessful so far. "The four major shipping companies' debt ratio reached as high as 609% last year, compounding the matter," said Hi Investment & Securities research analyst Kim Ik-sang.

At the same time, their rapidly deteriorating credit ratings are making the issue of corporate bonds even more difficult. Credit-rating agencies in the private sector, such as Korea Investors Service, have already lowered Hyundai

**Four Major Local Shippers Corporate Bonds Reaching Maturity in 2013**


(unit: 100 million won)



Source: Hi Investment & Securities

Merchant Marine's rating from A0 to A- earlier this year, and that of STX Pan Ocean from A0 to BBB+. Hanjin Shipping's rating fell from A0 to A- in 2012.

Industry experts are urging the companies to enhance financing capabilities through various ways. Specifically, they are saying that the dependence on corporate bonds and bills should be lowered by making better use of asset disposal and recapitalization. In fact, earlier this year, Hyundai sold a very large crude carrier (VLCC), purchased from Denmark's Maersk Group in 2004, at a cost of US\$21 million, while Hanjin Shipping signed an MOU with Diana Shipping in Greece regarding the sale of one of its 4,000 TEU class Panama container ship at a price of US\$22 million.

"To be able to repay maturing bonds and short-term borrowings, the companies have to strengthen their financing and risk monitoring capabilities in advance, while disposing of vessels and assets," said an analyst, adding, "In the case of SK Shipping, the absolute amount of outstanding issues is rather small for now, yet it is in a state of capital impairment at a ratio of 48.3% and therefore needs to recapitalize itself through a paid-in capital increase within a year or two." 



## Casino in Free Economic Zone

# Government Reexamines Permission of the Business

The government regulations regarding the establishment of foreigner-only casinos in free economic zones, which were eased in September last year to attract more foreign capital, are put into reconsideration. Under the circumstances, the government permission for the Japanese and Indonesian casinos that made their applications is likely to be postponed indefinitely from late March.

“The purpose of casinos in free economic zones is to attract foreign capital but we need to think over whether it is the only way to meet the goal,” said Minister of Culture, Sports & Tourism Yu Jin-ryong on March 11 at his first press conference after the appointment.

The revised enforcement ordinance in question passed the cabinet meeting in September 2012 so that investors can ask the minister for prior permission for casino establishment with informal documents. Though the Ministry of Knowledge Economy and the Ministry of Culture, Sports & Tourism had had different opinions concerning the issue, former President Lee Myung-bak decided to move ahead with it at the debate forum for economic revitalization held in July last year.

Foreign companies have moved nimbly to set up casinos in Korea since immediately after the passage of the bill. For example, Lippo & Caesars, the joint company between the world’s largest casino group Caesars Entertainment and the Lippo Group in Indonesia, made an application for prior permission in late January to build a foreigner-only casino in Yeongjongdo, Incheon City. Japanese pachinko company Universal Entertainment made a similar application for

a casino in the International Business Center in the Seoul/Incheon International Airport, too. The Ministry of Culture, Sports & Tourism is currently examining their requests and has to notify them of the results before the end of March at the latest. Domestic casino companies are in strong opposition, mentioning that the government is granting favors to the foreign companies.

“In principle, there is no doubt that more foreign investment needs to be made in domestic industries, including the tourism sector,” said the minister, adding, “We’ll go over the prior permis-



sion from scratch so that the most satisfactory results can be achieved.”

## Aircraft Cargo Industry

### Pushing into Central and South America

Amid prospects that Q1 sales in the aircraft cargo industry will fall below original expectations, its survival rests on whether the volume of aircraft cargo transport will return to normal.

Airlines are also actively seeking ways to turn around their lackluster showings by e.g., expanding into niche areas. In particular, they are focusing efforts on niche markets by handling previously unhandled small-and medium-size cargos and increasing flights to Central and South America, which was a relatively unpopular destination.

Korean Air is also seeking to tap into the market, which recorded a 100% rise in demand compared with last year, instead of Europe and North American, which saw cargo demand decline.

The airline now flies to São Paulo, Brazil and Lima, Peru twice a week, from once a week, and also plans to add more flights to Santiago, Chile, which had previously been operated on an irregular basis, indicating a shift toward a focus on internal stability.

Export items also have been diversified away from televisions and clothes and into high value-added products such as cell phones, auto parts, and fabrics.

Song Jae-hak, a researcher at Woori Investment Securities said, “Passenger transport this February rose 8.5% year-over-year, but cargo transport took a dive by 13.7%,” adding, “Such dismal figures are attributable to persistent Eurozone recession and worsening airline landscape caused by increased competition among airlines.”

## PID 2013

## Ending with Biggest Outcome Ever



The international textile fair called “Preview in Daegu (PID) 2013” was successfully held from March 6 to 8 at EXCO in Daegu, resulting in the record-breaking amount of trade consultations and agreements.


There were lots of trade consultations on the products worth a total of US\$ 190 million, a 13% increase from the previous year, and the actually-signed trade agreements amounted to US\$80 million, a 12% rise year-on-year, according to Daegu-Gyeongbuk Textile Industries Association, the organizer of PID 2013.

Despite the generally difficult economic situations at home and abroad, PID 2013 had the largest number of participants and buyers ever; a total of 337 participants (247 natives & 90 firms from 8 foreign countries) and about 2,000 buyers from 30 countries.

This year, in particular, a large number of actual buyers came to the fair from the US, the EU, Japan, the Middle East and Southeast Asia, and the participants displayed the state-of-the-art new fiber materials and had substantial consultations with the buyers. And, to be fit for Daegu’s global reputation as the home to synthetic fiber, lots of high-functioning and high-tech textiles drew attention from foreign buyers.

At PID 2013, unlike the previous events, the newly established Patent Textile Zone effectively promoted the

creativity of the new textile products developed by the local manufacturers, and the digital information system called the “QR System” promptly provided business information for the buyers.

A source from the organizing committee of the fair said, “PID will position itself as the world’s most recognizable textile fair by focusing on high-functioning and high-sense textiles for clothing and innovative fiber materials for industries.” In the meantime, PID 2014 is scheduled on March 5 for a three-day run. 

## New Nylon Material

## KTDI, Bokwang Jointly Developed

A new material, which boasts natural elasticity using only nylon while maintaining the function of the existing light-weight fabrics for outdoor use, has been developed.

The Korea Textile Development Institute (KTDI) announced on March 6 that for the first time in Korea, it had successfully developed a nanofiber nylon6 100% conjugate stretch and product (photo), jointly with Bokwang, a light-weight fabric weaving firm for sport and outdoor use operating in Daegu City.

The new creation can be used to produce outdoor jackets, windbreaks, and down parkas, etc, and the fabric developed using this material weighs as little as 40~50g/m<sup>2</sup> and has natural elasticity without the help of spandex. Through years of efforts, the new material is now equipped with the new feature, a natural elasticity, while keeping the function of the light-weight materials most frequently used in outdoor sports clothing intact.

The technology giving elasticity to the nylon6 thread is under development by numerous companies, domestic and international, including Japanese Toray and Unitika, but this marked the first time commercialization took place using technology developed entirely in-house.

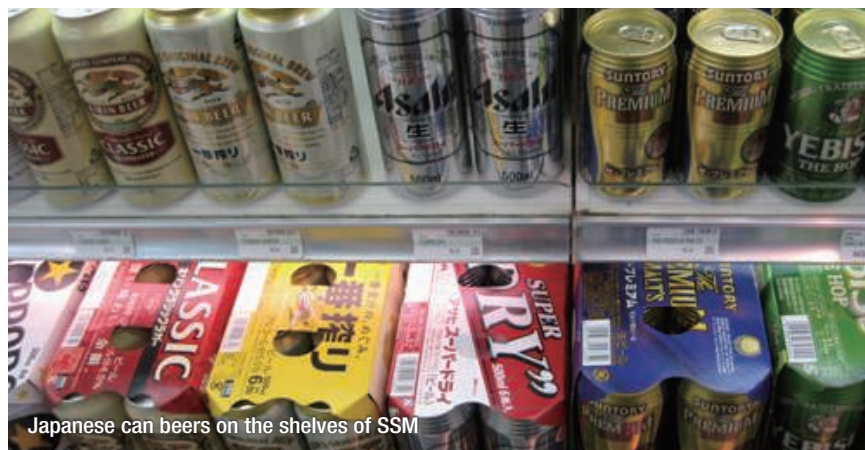
Bokwang said application of the new material to well-known domestic brands has been received well by customers and led to constant demand for delivery. The KTDI and Bokwang secured one patent registration and two trademark registration relating to the development of a new material. KTDI President Lee Choong-sik said, “This new material will lead to a groundbreaking new product fueling a new boom in sports and outdoor products.”





## Japanese Beer

# Making Aggressive Push with Price Discounts and Two-for-one Marketing



Japanese can beers on the shelves of SSM

With 6 million independent businesses scheduled to begin boycotting Japanese goods in March, Japanese beers buoyed by price competitiveness thanks to a weak yen are encroaching on local turf, hurting supermarkets and convenient stores.

Some observers, however, forecast that as the movement begins in full-swing, the Japanese momentum will slide.

According to the distribution industry on February 26, Japanese beer companies roughly doubled their sales in “Super Supermarket (SSM)” and convenient stores last month, typically a bleak period for beers, through aggressive promotional campaigns such as price discounts and two-for-one marketing.

Lotte Super saw its share in total beer sales of Japanese brands such as Asahi, Sapporo, Kirin, and Suntory more than doubled in January to 8.4% from 3.3% for the same period a year ago. That resulted in the imported beers representing over 15% of all beers for the first time in the company’s history, at 17.5%. In contrast, the sale of home-grown

beers declined to 82.5% from 91.3% during the same period. Home Plus Express posted a whopping 38.6% rise in the sale of Japanese beers last year.

The Japanese beers are also rapidly gaining popularity in convenient stores. Seven Eleven registered a 40.4% year-over-year increase in sales of Japanese beers in January, well over the rate of growth in sales of other imported beers, which was 18.1%. The percentage the Japanese beers represent of overall sales of beer imports also went up 5.6 percentage points, to 41.0% last month from 35.4% in January, 2012. GS25 also recorded a 37.7% rise in sales of canned Japanese beers.

Such popularity even in small neighborhoods is presumably attributable to the Japanese firms’ aggressive efforts to drive sales in the typically stagnant January based on the financial firepower conferred upon them due to the yen’s devaluation, while domestic and European beer makers put marketing campaigns on hold.

With a 20% fall in the yen’s value in three months reducing cost of importing


and distributing Japanese beers, those firms became more financially capable of focusing on marketing. It is unusual for beer makers to step up sales promotion in January.

In fact, Japanese firms such as Lotte Asahi hosted special discount events last month in order to reduce resistance to prices. For example, Lotte Super sold a pack of Asahi and Sapporo (350ml), which is made up of 5 such beers – for 10,000 won, 4,500 won off the regular price.

One Lotte Super official said, “Usually, the price of Japanese beers is twice as high as that of Korean beers, but when the Japanese beer brands hosted special discount events, the price gaps narrow down to unnoticeable levels, thus attracting customers in their 20s.”

Observers in some corners forecast that a nation-wide boycott of Japanese goods that will start in March by 6 million self-employed businesses including the Federation for Revitalization of Alley Market will curb such rapid growth. Such movement is part of efforts to take Japan to the task for its Dokdo provocation.

One distribution industry official said, “It’s hard to predict exactly how many Korean self-employed people will take part in the efforts. However, it would inevitably deal a blow to the Japanese beer makers if the market refrained from selling Japanese beers.”

Some predict that the boycott will have little impact on Japanese beer brands. They say, “I don’t think that Japanese beer lovers won’t be drinking the beers simply because of antipathy towards the country,” adding, “It’s unclear whether independent businesses will actually launch boycotting.” 

## Korea Venture Capital Association

# New Venture Investment Estimated at 1.3 Trillion Won This Year



Lee Jong-gap, chairman of Korea Venture Capital Association

It is expected that venture investment funds worth a combined total of 1.4 trillion won will be raised this year and 1.3 trillion of it will be spent on new investments.

Neoplux vice chairman and Korea Venture Capital Association chairman Lee Jong-gap, who was recently elected to serve consecutive terms, held a press interview on February 22 at the grand conference room of the head office of the association located in Seocho-dong, Seoul and said, "This year, new venture investment funds worth 1.4 trillion won in total are expected to be raised thanks to the National Pension Fund's investment expansion and re-investment in funds of funds." He continued, "We've carried out a total inspection on venture capitals and found that the overall investment size will slightly increase from a year earlier to 1.3 trillion won."


According to the association, 747.7 billion won of venture investment funds were raised last year, which is the lowest since 2005, as major investors such

as the National Pension System and the Korea Finance Corporation decreased their investment. The overall investment declined 2.2% from 1,260.8 billion won to 1,233.3 billion won during the same period.

"Although private-sector enterprises and banks are still refraining from making new investments, funds of funds and the national pension fund are estimated to make an investment worth approximately 378 billion won and 350 billion won this year alone, respectively," he went on, adding, "Some 80% of the new investment is likely to find its way into the information communications, general manufacturing and cultural contents industries to create more than 10,000 jobs given that a trillion won of investment in venture firms is considered to be equivalent to 10,000 new jobs."

Korea Investment Partners spent the

largest amount, 83 billion won, during the period and Atinum Investment (66.9 billion) and LB Investment (49.8 billion) followed it. Their total principal recovery amounted to 683.3 billion won last year — 56.5% by over-the-counter selling and repayment, 22.4% by project financing and 17.8% by initial public offering. M&A accounted for just 1% to decrease rapidly for the fourth consecutive year since 2009, when the percentage had been 7.1%.

"In 2012, not only was the number of IPOs low due to the sluggish stock market but also the strict listing requirements made capital recovery through listing difficult," he remarked, "However, we're anticipating that the KONEX market, which is going to be made available this year for venture firms in their early stage, will help venture capitals diversify their exit channels." 

## Small & Medium Business Corporation

### Started to Unearth 45 Smart Products out of SMEs

Small & Medium Business Corporation (SBC) announced on March 12 that it has made a decision to enter into full operation of the expanded "2013 Smart Products Excavation & Support Project" from this month. The project is to unearth small and medium enterprises (SME)'s quality products that are no way inferior to large firms' brand products, and help the SMEs seek channels to sell those products.

To those selected under the project, SBC will offer preferential rights to sell at some off-line shops such as "HIT500 Plaza," and provide active follow-up marketing supports including connection to domestic distribution channels and large-scale global networks. SBC also plans to directly support the special events for those products at the online open markets.

In addition, from the end of March, SBC will operate an online SME luxury shop to share product information and promote the products at all times, and make joint marketing efforts through pilot certification of the "HAPPY Q," created as a joint brand for quality SME products last year.

## Home Shopping Business Overseas

# Overseas Home Shoppers Love Korean SME Products

“We are selling lots of Korean cleaning supplies to Indian people who live in small houses, and Korean kitchenware in China where men enjoy cooking.”

According to a recent survey, an increasing number of Korean small and medium enterprise (SME) products are selling to foreign countries through overseas Korean home shopping channels and the hottest items differ by country. In other words, consumer preferences are diversified depending on each country's economic situations and cultural attributes. So, SMEs should pay close attention to the consuming patterns by each country before moving to overseas markets.

On February 27, CJ O Shopping released the results of its recent survey of hot items selling through its eight affiliate home shopping channels operated in six countries. According to the survey, they sell household rotating mops, laundry hacks and space-saving storage supplies the most in India. Their proportion to the total sales of Korean products there is 60%. These products have become big hits because they are well designed for the lifestyle of many Indian people who have to efficiently use the living space.

However, the most dependable cash cow in China is kitchenware accounting for a staggering 90% of total sales of Korean products. A source from CJ O Shopping said, “China shows the highest proportion of men who enjoy cooking in Asia. In particular, male customers aged 40's to 50's are taking the lead in purchasing Korean kitchenware.” Thanks to this atmosphere, Korean products such as Lock & Lock, Happycall, Dokebi Bar and Hurom, also well-known in Korean

market, are very common in the kitchens of Chinese people.

And in Vietnam and Thailand, where the Korean cultural contents such as dramas, movies and pop music are popular, Korean cosmetic and beauty products are selling well. That is because lots of women in these countries are interested in the Korean actresses' make-up style.

The source from CJ O Shopping said, “The accumulated total sales of Korean products sold through our overseas affiliate home shopping channels for the recent six years have exceeded 500 billion won. Especially, we recorded 170 billion won in sales during last year only. Most of them were the SME products.”

He continued, “In our early stage of overseas business, household supplies and kitchenware accounted for about 90% of our total sales of Korean products. But, the recent trend is that prod-



uct categories are getting widely-ranged including processed foods, children's books, and fashion apparel and accessories. Various kinds of Korean SME products are selling to overseas home shoppers as we have sorted out items taking into consideration each country's different economic situations and cultural attributes.”

## hyFc

## Genexine's Registered the Patent in Seven European Nations

Genexine announced on March 5 that it obtained a patent from the European Patent Office on February 27 on hyFc, which is the key source for long-acting protein therapeutics

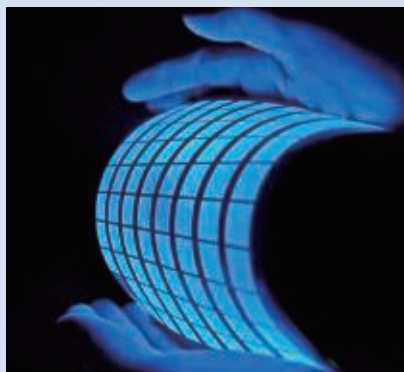
“Our patent registration at this time covers seven European nations with large markets, including Britain, France and Germany,” said the company, “The acquisition of the patent is particularly meaningful in that the long-acting growth hormone therapeutics we're working on with Handok Pharmaceuticals is about to enter its clinical phase 1 trial in Europe.”

With the aid of hyFc, protein therapeutics can be produced that maintain the same effect while reducing the frequency of injection from once a day to once per two weeks or a month. Genexine has recently wrapped up the clinical phase 1 trial for the EPO-hyFc, an anemia medicine it developed using the technology. Also, it is moving ahead with a number of other clinical trials both at home and abroad for many therapeutic agents.



### Flexible OLED for Lighting

## LG Chem to Commercialize



LG Chem is expected to commercialize flexible OLED panel (see the picture) in July, 2013. OLED panel for lighting is among the company's new business items. Especially, flexible one is so innovative that no one has ever succeeded in commercialization in the world.

According to a source from the electronic material industry on March 7, LG Chem has already completed development of flexible OLED lighting panel and is going to start to com-

mercially supply the product as early as in July this year.

LG Chem's flexible OLED lighting does not emit light like general fluorescent bulbs or in the form of points, but its surface emits light. According to the industry source, the flexible OLED lighting is 20 centimeters wide, 5 centimeters long and 0.2 millimeters or less thick. Its luminous efficiency is 45lm/W (power level needed for a certain level of brightness), a little lower than inflexible OLED lighting. On top of the flexible OLED lighting, LG Chem plans to start manufacturing high-efficiency (80lm/W) general OLED products within this year.

An LG Chem official explained, "We will enter into full production of flexible OLED lighting in the second half of this year. The production will be made at the pilot line of our Ochang Plant Unit 1 located in Ochang, North Chungcheong Province." The company will make a decision about expansion of the production line depending on the market response and changes in demand.

### Thin-film Battery Component

## LS Mtron Started the Mass Production for Smartphones First in the World

LS Mtron, an LS Group affiliate specializing in industrial machinery and high-tech components, entered into mass production of 6-micrometer ( $1\text{ }\mu\text{m} = 1/1,000\text{ mm}$ ) copper foil for batteries for the first time in the world.

LS Mtron announced on March 11 that it will supply this new copper foil to some global major battery manufacturers, who will apply it to batteries for new smartphones. Copper foil serves as anode current collector in secondary batteries. There are only a few companies in the world that have technological capability for this core component. Particularly, LS Mtron's  $6\text{ }\mu\text{m}$  copper

foil has a thickness of one seventeenth of a A4-size sheet, 25% thinner than the existing  $8\text{ }\mu\text{m}$  one. So, it can make batteries thinner but longer-lasting.

A source from the company explained, "It's been eight years since  $8\text{ }\mu\text{m}$ -thick copper foil was first applied to secondary batteries. But, due to the technological difficulty in the manufacturing process, no more advanced product had been created. Then LS Mtron, for the first time in the world, succeeded in developing and mass-producing  $6\text{ }\mu\text{m}$ -thick copper foil based on its world-class coating and web-handling technology."

Demand for  $6\text{ }\mu\text{m}$  copper foil is

expected to sharply increase since technologies for thinner batteries are vital to wireless chargers for cell phones which are soon to be commercialized. Now Korea-based LS Mtron and Japan-based Furukawa are vying with each other for the lead in the global battery copper foil market. Experts estimate the market is now worth of 400 billion won but it will swell at an annual average of 30% and reach 700 billion won by 2015. LS Mtron aims to become the world's leader in this market by increasing its annual sales of copper foil for batteries up to 300 billion won in 2015, and achieve the goal of 1 trillion won in sales of copper foil by 2017.

### Flexible High-volume Semiconductor

## KAIST Developed a Source Technology

Korea Advanced Institute of Science and Technology (KAIST) announced on March 12 that the research team led by Professor Kim Sang-ouk from the Department of Materials Science and Engineering succeeded in realizing the 20nm-class hyperfine pattern, known as the highest-level semiconductor pattern, on the flexible surface of graphene, utilizing a kind of molecular assembly technology.

The molecular assembly technology is to make flexible and soft polymers, such as plastic, liquid crystal and biological molecules, self-assembled into a desired form. The technology makes it possible to efficiently create nano-structures.

Professor Kim's research team first formed a hyperfine pattern on graphene, which has excellent mechanical properties and can be easily moved to a desired substrate, through a molecular assembly technology called the "Block Copolymer," and then realized a hyperfine pattern structure on the three-dimensional and flexible substrate.

This source technology can be applied to various kinds of materials. Furthermore, with this technology, there

will be no need of installing high-priced manufacturing equipment to fabricate semiconductors because a simple mixture of materials through chemical interactions can lead to a self-assembled structure in any desired forms. In other words, semiconductors can be manufactured at a far cheaper cost, said the research team.

Professor Kim Sang-ouk explained, "Some flexible semiconductors have been developed using plastic substrates so far, but none of them have been commercialized. They are vulnerable to high temperature and consequently cannot tolerate the extreme process. But our team has made a breakthrough by using graphene, which has excellent mechanical properties, as material for circuit substrates."

He added, "We will proceed with follow-up researches based on this source technology. We will make a challenge on the design of complex circuits including semiconductor ones."

The research achievement was published in the international academic journal "Advanced Materials" as of March 6.

### RF Chip

## KAIST Developed the Chip 50 Times Faster Than Wi-Fi

It is expected that the time taken to download large-size files will be shortened significantly down the road because a wireless chip has been developed capable of transmitting a full HD video file stored on a smart phone in real time.

The Ministry of Education, Science and Technology and the National Research Foundation of Korea announced on March 12 that the Intelligent RF Research Center of the Korea Advanced Institute of Science and Technology (KAIST) developed a new wireless transceiver RF chip whose data transmission speed is 50 times faster than that of Wi-Fi. The chip allows a

5GB DVD file to be downloaded in just 5.4 seconds. The time amounts to three minutes and eight seconds and 208 minutes and 53 seconds for Wi-Fi and Bluetooth, respectively.

In addition, in the medical sector, endoscopic surgeries can be performed without cables with the help of it. Existing technologies for wireless data transmission and reception entail some disconnection and the accuracy is rather limited. However, an endoscope incorporating the RF chip is free from such disconnection.

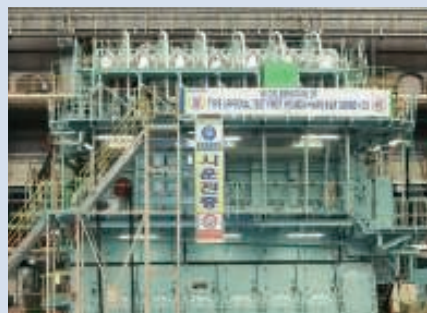
According to the KAIST, the RF chip can transmit 10.7Gb of data per second at a bandwidth of 60GHz and the antennas for transmission and reception are combined with each other for a smaller

size and lower power consumption. A Wi-Fi network's speed is approximately 200Mb per second.

Furthermore, the researchers succeeded in sending a full HD video file stored on a smart phone directly to an HD TV without compressing it by means of the chip so that the risk of data loss and distortion caused by compression can be prevented from the get go. They reduced the power consumption of the chip substantially by adopting the OOK, or on-off keying, method, too. It is characterized by sending signals only when the data signal is not 0 but 1. The chip also allows high-resolution video files on a portable device to be watched via a beam projector without the need for dedicated cables.

### Green-type Marine Vessel Engine

## Hyundai Heavy Industries Developed the Engine First in the World




Hyundai Heavy Industries announced on March 12 that it succeeded in developing the world's first Green-type marine vessel engines and finished the type approval procedure recently.

The test was attended by ship owners and inspectors from 11 classification societies around the world, including ABS in the US, DNV in Norway, LR in the UK

and NK in Japan. Two types of engines, one with 37,900hp and the other with 38,200hp, obtained the type approval at this time. The ultra long stroke engines were developed jointly by Hyundai Heavy Industries and MAN Diesel & Turbo to meet the needs for higher eco-friendliness and performance efficiency.

An ultra long stroke engine is characterized by the stroke, which is the vertical travel distance of the pistons in the cylinder, being lengthened to increase its fuel efficiency by up to 7% and reduce the harmful gas emissions by 7% or so. For example, a post-Panamax (7,500TEU-class) container ship equipped with the engine can save approximately 3.2 billion won of fuel costs a year and the amount reaches about 1.4 billion won for a very large crude carrier (VLCC). Assuming that these vessels are in service for 25 years, the total adds up to 80 billion and 35 billion won, respectively.

The G-type engine of Hyundai Heavy Industries has recently been adopted by Almi Tankers in Greece for its 319,000-ton VLCC. It is scheduled to be employed by Thenamaris' 5,000TEU-class container ship in April, too. 

## University Rankings

### Korea Lags behind Japan and China

A new survey found that Korean universities' reputation still lags far behind its Asian counterparts.

Times of Higher Education (THE) Magazine announced on March 4 (local time) that in the 2013 World Reputation Rankings of Universities, a survey of 16,639 scholars from 144 countries, conducted jointly with Thompson Reuters, Seoul National University was ranked 41st by garnering 8.3 points. The university broke into the top 50 for the first time this year after remaining between 51st and 60th places for two years in a row since 2011, a year when the survey first began.

The Korea Advanced Institute of Science and Technology (KAIST), along with Seoul National University, was ranked among the top 100 by making into the ranking of between 61st and 70th for the last two years.

However, Korean universities are still far behind its Asian counterparts given that both Japan and China each have two universities represented in the top 50.

As for Japan, Tokyo University, at 9th place, made the top 10 for the third consecutive year, and as many as five universities including Kyoto University (23rd) and Osaka University (51st – 60th) were named among the top 100.

Five Chinese universities also were ranked among the top 100, with Tsin-

ghua University at 35th (9.6 points), Beijing University at 45th (7.8 points), Hong Kong University at 36th, and Hong Kong University of Science and Technology (HKUST) at between 61st and 70th.

Harvard University topped the list for three years in a row, and Massachusetts Institute of Technology (MIT) and the U.K.'s Cambridge retained their former positions of 2nd and 3rd place, respectively.

The top 10 include seven U.S. universities, two U.K. ones, and the Japanese Tokyo University, which became the only Asian university among the top 10.



Jeong Kap-young,  
president of Yonsei University

### President of Yonsei University Starting a Global Move

As Yonsei University continues a good sail with preparation for the Residential College (RC) at the International Campus and redevelopment of the Baekyangro Street at the Shinchon Campus, President Jeong Kap-young has started his global move in this semester.


While visiting the US until March 17, Jeong has a very busy schedule including participating in the "Global Colloquium of University Presidents 2013." He has often visited overseas universities and

alumni associations during the vacation, but it is unusual to go on an overseas trip during the semester.

The Global Colloquium is an annual meeting of university presidents. It is organized by five prestigious universities located in the New York area of the US – Yale University, Princeton University, Columbia University, New York University and the University of Pennsylvania – with the support of the United Nations Secretariat. Since the United Nations set eight topics to achieve the millennium development objectives at the Millennium Summit in 2000, about 20 university presidents around the globe and related experts have gathered to discuss the topics every year.

This year, the presidents of 26 universities from around the world including Higher Colleges of Technology (UAE), European University at St. Petersburg (Europe), East China Normal University (Asia), Federal University of Bahia (Brazil) and Kenyatta University (Africa) participate at the Colloquium. Yonsei is the only Korean university participating in the meeting.

Yonsei University plans to establish new programs for global issue researches and education in cooperation with the UN and the Green Climate Fund at its International Campus in the city of Songdo. Yonsei will also help the UN Sustainable Development Institute, which came to be located at the International Campus in Songdo in 2010 by the efforts of Yonsei University, play a more active role.

In the meantime, President Jeong will meet with the UN Secretary General Ban Ki-moon and the Executive Director of UNFPA Dr. Babatunde Osotimehin on March 15. 





## Riot Games' League of Legends

## Taking over Korean Online Game Market

League of Legends is increasing in popularity in the Korean market and creating concern to local online game developers.

According to research firm Gametrics, League of Legends, developed by US-based Riot Games, has ranked first for 31 consecutive weeks in terms of the number of users playing games in local Internet cafes. Though figure fell slightly earlier this year due to the release of new games by local studios, it has been over 30% for three consecutive weeks this month, continuing its dominance in the Korean market.

It is online games developed by Korean companies, at a cost of billions of won in some cases, which have taken a direct hit. For example, XLGames' ArchaeAge, which made its debut on the second day of this year, is currently ranked fifth in the market, while MGame's Yulhyulgangho, whose open beta service was released on January 10, is not in the top 10. NCsoft's Blade & Soul and Aion are in the top 10, but the market share of League of Legends alone is higher than the combined share of all online games developed by Korean studios.

Established back in 2006, Riot Games launched the game in the United States in October 2009 as its first product. Upon release, it won rave reviews from game fans and quickly emerged as a dark horse in the global market.

It topped the Korean market in just four months after its debut here in December 2011. Since then, it has been



way ahead of all other online games here, apart from when it has lost the top spot for short periods immediately following the launch of large-scale games like Blade & Soul and Diablo 3. At present, more than 12 million users log onto the game worldwide every day, with the number of concurrent users recently surpassing the three million mark.

Such towering popularity is mainly because it is provided free of charge. Also, it arouses user interest by adding new game characters, called champions, whereas existing online games do so by means of regular large-scale updates. Some of the champions and their costume items require a fee but users still can enjoy the game without having to pay money because such items have nothing to do with winning or losing but are used to simply allow users to create their own individuality. The number of champions has increased from 88 to 110 since its release.

In the meantime, League of Legends has changed the way local companies service their games. These days, an increasing number of users are resisting monthly regular membership fees,

causing companies to change what was previously their major profit model. NHN Hangame removed the fee for its Terra from 19,800 won per month earlier this year, while CJ E&M Netmarble made Rift a free service in November last year, six months after its release. NCsoft, on its part, has made some of the characters in Blade & Soul and Aion free. This trend of replacing monthly fees with

free access and certain paid items is now quickly spreading.

Industry experts claim the popularity of League of Legends will continue for a while, with more and more Korean users logging on and Riot Games coming up with more region-specific services for Korea, a country often considered a barometer for the global market. The US company has already presented Ahri, a Korean-style character that borrows its concept from the traditional fairy tale of Gumiho (nine-tailed fox), and Shaco skin using the design of a Hahoe mask. Such localization efforts brought it the Most Popular Online Game prize at the Korea Game Awards 2012 held by the Ministry of Culture, Sports & Tourism, a feat quite unprecedented for a non-Korean game studio.

"Local firms are trying to make a breakthrough by means of new games and various special events but things are unfavorable for them," said a market watcher, adding, "Korean game companies, which are already suffering from the government's strict regulations and market slowdown, are becoming more and more worried about the situation." BR

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세 개의 하이패스 회오리바람으로, 때론 겨울바람처럼 강하고

세 개의 하이패스 회오리바람으로, 때론 봄바람처럼 힘을 아끼는

삼성 스마트에어컨 Q9000, 그 7가지 바람의 힘을 만나보세요

다양한 구매 혜택과 홈케어서비스까지, 혜택의 힘도 바람만큼 강합니다

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